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A new SYSTEM of HUSBANDRY, from
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the Crops are to follow each other, by way of rotati-
on; and how to maintain the poor well, and lower
the poor-cess

LIKEWISE,

Some Hints, humbly offered to the Legislature, on
inclosing COMMONS and OPEN TOWN-FIELDS.

WITH

Several PLANS of new-invented Machines; some valueable
RECEIPTS for the Cure of Cattle, &c. &c.

TO WHICH IS PREFIXED

A short ABSTRACT of the AUTHOR's Life and
Travels.

BY A REAL FARMER.

VOL. I.

GLASGOW:

PRINTED FOR THE AUTHOR,

BY ROBERT AND ANDREW FOULIS, M.DCC.LXXIII.



Counties of IRELAND.	Irish Planta- tion Acres.	Houses in the years † 1754 & * 1766.		Pa- rishes.	Baro- nies.	Bo- roughs.
<i>Ulster</i> 9 Count.	2836837	115539	128983	365	55	29
1 Antrim	383020	19071	20738	56	8	5
2 Armagh	170620	11261	13125	49	5	2
3 Cavan	274800	8318	9268	37	7	2
4 Down	344658	22914	26090	72	9	6
5 Donegal	630157	11097	12357	40	5	5
6 Fermanagh	224807	5478	5674	19	8	1
7 Londonderry	251510	13489	14528	38	4	3
8 Monaghan	170090	9587	10658	24	5	1
9 Tyrone	387175	14324	16545	30	4	4
<i>Leinster</i> 12 Coun.	2642958	122901	127900	858	99	53
1 Catherlough	116900	5006	5444	42	5	2
2 Dublin	123784	21304	23103	87	7	4
3 Kildare	228590	8887	8555	100	10	4
4 Kilkenny	287650	11379	13231	96	9	7
5 King's Co.	257510	8574	9294	56	11	2
6 Longford	134700	5038	6057	24	6	4
7 Louth	111180	8268	8150	50	5	5
8 Meath	326480	14277	14000	139	12	6
9 Queen's Co.	238415	10418	11226	39	8	3
10 Westmeath	249943	9271	9621	62	12	4
11 Wexford	315396	13015	11438	109	8	8
12 Wicklow	252410	7464	7781	54	6	4
<i>Munster</i> 6 Count.	3289932	109743	117197	740	63	26
1 Clare	428187	10014	11381	76	9	1
2 Cork	991010	43286	47334	232	19	12
3 Kerry	636905	11614	12112	84	8	3
4 Limerick.	375320	17019	19380	130	10	3
5 Tipperary	599500	18325	18057	147	10	3
6 Waterford	259010	9485	8933	71	7	4
<i>Conaught</i> 5 Count.	2272915	47256	49966	330	43	10
1 Galway	775525	15420	15576	136	17	3
2 Leitrim	206830	4001	5156	21	5	2
3 Mayo	724640	13085	15089	73	9	1
4 Roscommon	324370	8780	8216	59	6	3
5 Sligo.	241550	5970	5929	41	6	1
IRELD. 32 Co.	11042642	395439	424046	2293	260	118

Houses included. Dublin City † 12857. * 13194. Cork † 8113.
 * 7445. Limerick † 3672. * 3859. Waterford † 2628. * 2111.
 Kilkenny † 2071. * 2255. Belfast † 5197. * 5295. Newry † 1561.
 * 1600.-----N. B. 5 acres Irish are equal to 8 acres, 15 perches,
 and 105 Pts. English. The Irish measure with 7, and the English
 with 5 1-half yards to the perch.

Explanation of the Plow.

THE beam of the plow is five feet and a half long; and the grossest part which is about the coulter hole, is four inches thick, by five deep, when the plow stands flat on the sole; the end of the beam whereon goes the muzzle, stands 17 inches from the ground; the cross on which goes the fock, measures $14 \frac{1}{2}$ inches and under the beam to the sole; two thick, and four broad. The grain of the wood must have a natural bend, in order thereon to fix the fock, else it would be apt to break. The large handle where the end of the beam is mortised, is six feet long, under it comes the chip, of a triangular shape. The mold-board is two feet long, from end to end, not from corner to corner; and 12 inches deep. A plank of five inches thick is sufficient to cut and give it a proper turn or cast. On this depends the goodness and ease of the plow going, it is very ingenious to shape a right one.

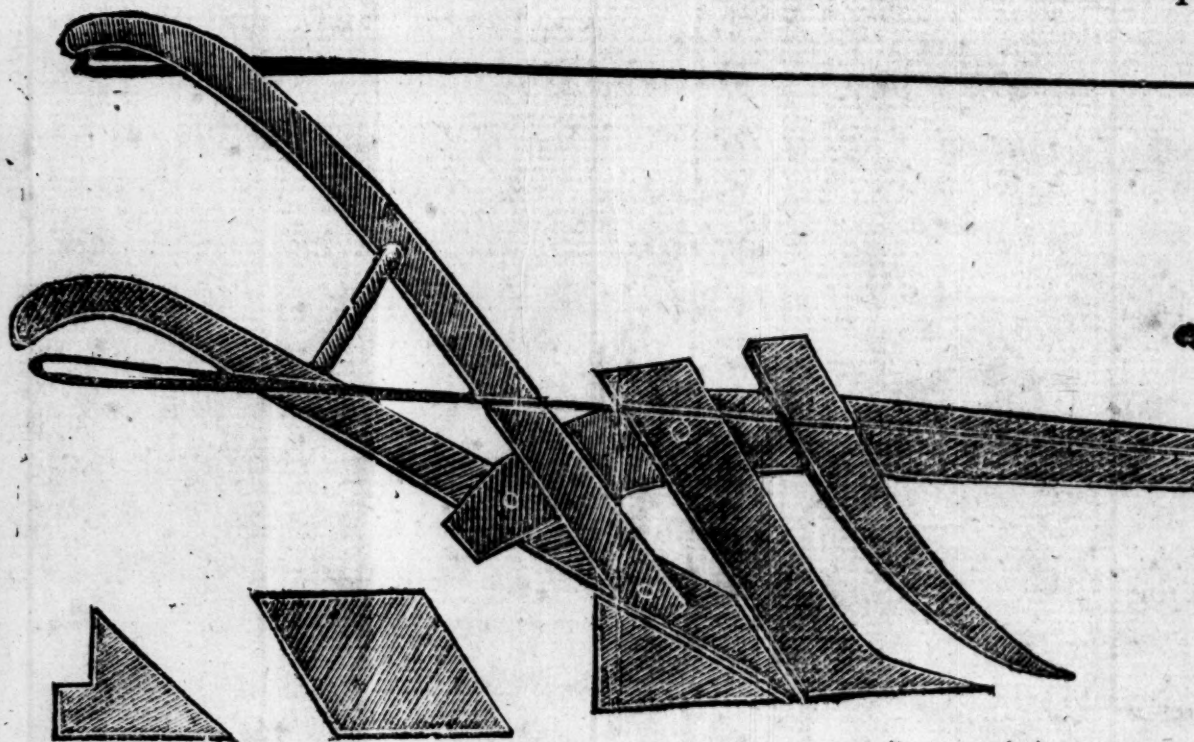
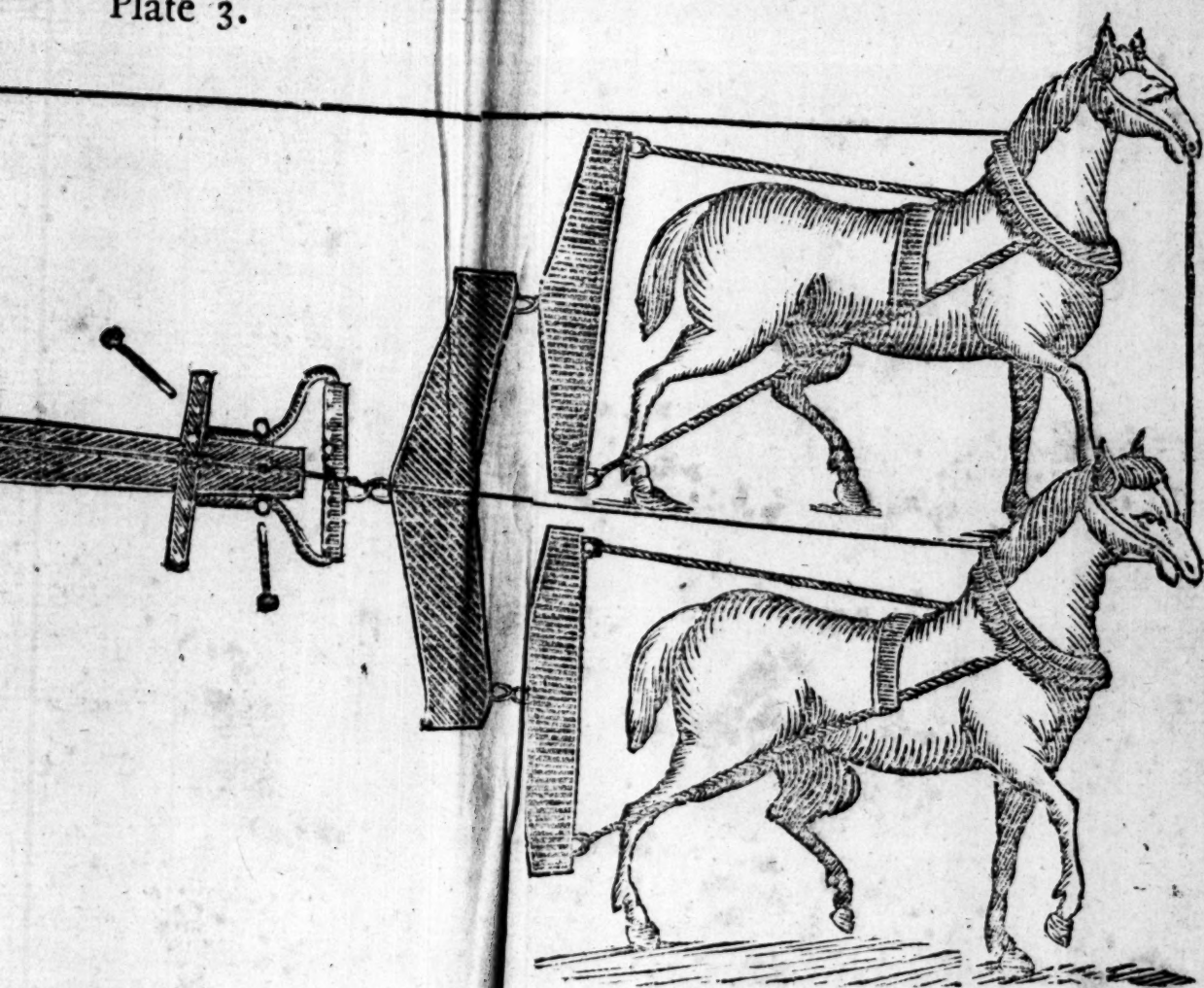
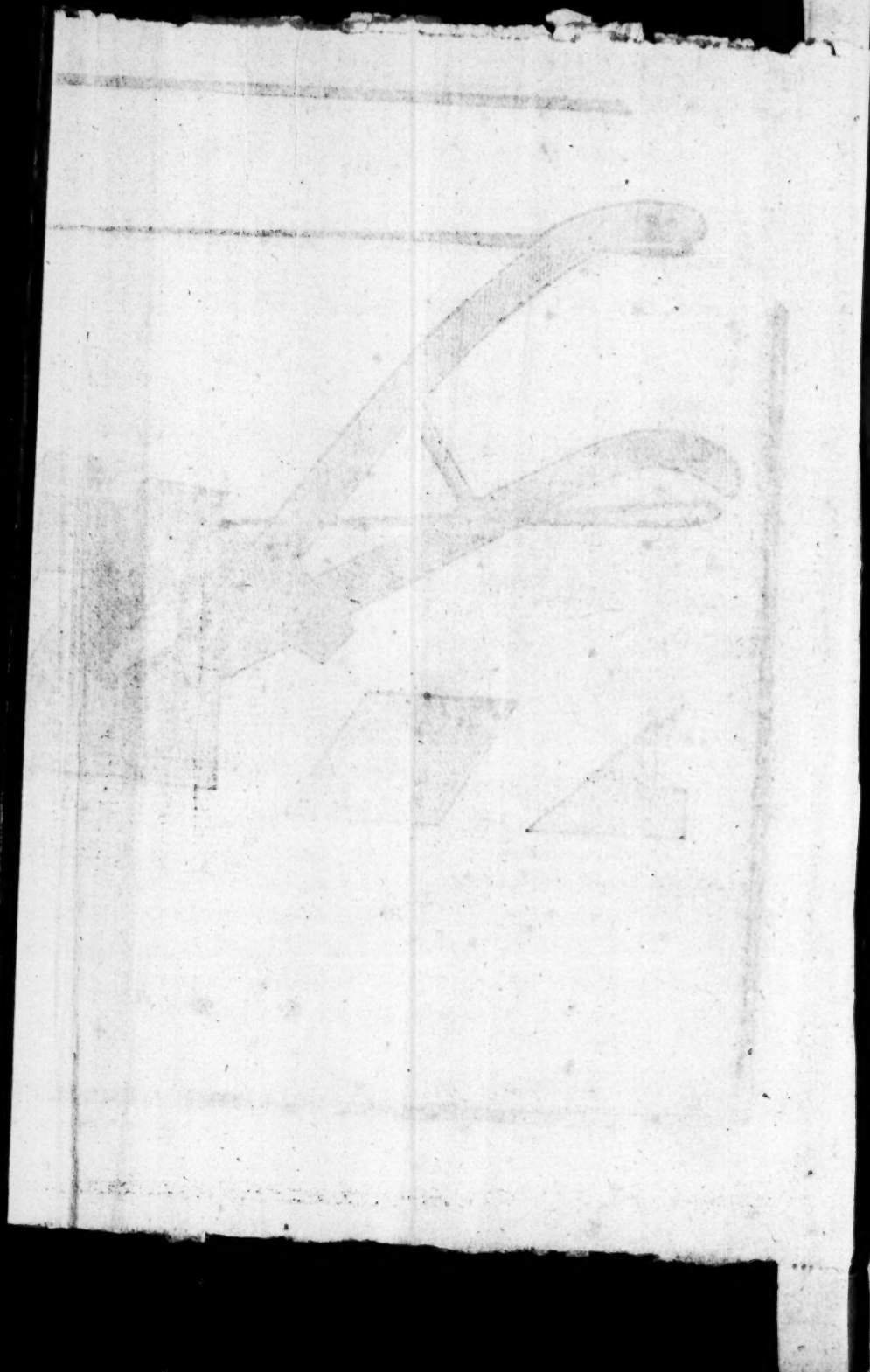


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E R R A T A.

Page 91, line 24, for buying, read beginning. p. 96, l. 19, for pit, read spit;
 and for yard, read foot. p. 148, l. 5, for oats, read crops. In the table for
 different quantities of seed sown on an acre, in the Author's column opposite
 saintfoin, for 18, read 16, and in said column, opposite to rye-grass, for 16, read
 18. In the Author's life, p. 49, l. 10, for Donnachadee, read Donaghadee.

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T H E

I N T R O D U C T I O N .

AS my design is to make this small Treatise as comprehensive and plain as possible, to the capacity of my farming readers, I humbly conceive, that the best way is not to over-burthen their memory with long and tedious paragraphs; or to perplex them with a confusion of subjects and ideas; or to divert their attention, from any main or material point, by unnecessary digressions.

In short my intention is to instruct, rather than to amuse my readers. The work is calculated for the apprehension of the simple and unlearned. To be useful to them, I must be as plain and intelligible as my subject will admit. And I have further endeavoured to digest and comprize the whole in as small a compass as possible, that it may attend on my readers as an useful and

ready monitor, and an instructive and constant friend.

What I have here presumed to offer to the public is quite foreign from matters of genius and speculation. It is merely a compendium and abstract of matters of fact, of personal experiments and observations, through a series and application of seven and twenty years continuance. I have borrowed nothing from books, nor from the precarious information of others. All stands on the ground and proof of my own repeated trials, remarks, and deductions, throughout the kingdoms of England, Scotland, and Ireland; in each of which kingdoms I have repeatedly laboured for a number of years, and here deliver to you the product of all that I have gleaned, with the varying allowances and respective instructions, touching the difference of the climate, the culture, and the soil.

As the utmost of my ambition is, simply and clearly to convey my thoughts

and meaning to persons of vulgar and mean capacities ; should men of improved genius, of letters and precision, happen to dip into this business, I trust, that, while they look down upon an author so much beneath them, they will have the goodness to pardon the defects of a writer whose only aim and endeavour is to be understood. But if here and there, they should find any thing deserving of their inspection or more particular attention ; if they should find some grains of wheat in the midst of my chaff, or smaller parcels of gold in the midst of my dross, the honour of having contributed, in any measure, to their advantage, will be to me a high matter of payment and gratification.

And as many farmers are prejudiced against theory, doubting that most authors on agriculture take the chief substance of their work from the precarious information of others ; therefore, in order to remove any odium of the sort, that might be cast upon this work, I

shall give my readers a short abstract of my strange adventurous Life and Travels; which, upon a view thereof, I trust will attract his attention, open his ideas, and embolden his resolution to put in practice the profitable easy methods of husbandry this book contains; particularly, when I assure him, that I have, and always had, the strictest guard upon my pen, to keep it within the line of truth and honour. Therefore what I shall herein set forth may be depended upon, so far as my small abilities are able to explain; and if the ingenious reader can improve upon my hints, he will be the more praise-worthy. The field of improvement is large enough for every one to try his talents in. A man must know much, to know every thing; a general knowledge is desired by many, but obtained by none. In short, every step that leads to knowledge, or improvement, is worthy of being marked with laurels of gold.

T H E
L I F E A N D T R A V E L S
O F T H E
A U T H O R.

AS to parentage or fortune I shall say little, but humbly confess myself the son of a plain English farmer. My grandfather indeed might claim an higher title; but he took care to spend a good estate, which lies about the middle of England, (not far from where I was born) and now out of our possession.

Before I arrived at my sixth year of age, my mother died in child-bed, and left my father a widower, with me his only child. Immediately after my mother's death, I was boarded at a school some distance from home, but before I had been there a year, I was sent for to

visit a step-mother; she was a widow when my father married her; and had two daughters about my age, by a former husband. In order to save expence, she soon persuaded my father to take me from school, and to have a master in the house, to teach me and her own children; but I received little benefit from this promise.

From this time, the miseries of my youth may truly take their date, for my step-mother proved a mere tyrant, and as my father was an easy, good natured man, it is easy to guess, that the grey mare proved the better horse (as the saying is) I soon began to feel the weight of her fingers, and the clamour of her tongue, and instead of learning, was put to all sorts of drudgery, above my strength, or infant years, which was chiefly hid from my father, as he was mostly from home, either at fairs, markets, or about his farming business.

At first I sometimes told my father how I was used; but this, I found, caused quar-

rels between them, and I fared the worse for it when his back was turned, which at last deterred me from telling him, suffer what I would.

She has often accused me of faults that I was not guilty of, in order to make my father thresh me when he came home; so that my life became almost insupportable; and as she used to keep me at work either in the garden, or cleaning out cow-houses, or stables, &c. I was losing the little learning I had got, which enraged my father the more against me, as he did not know all the real truth, but imputed it to my dulness, or neglect.

I really stood in such dread, that her looks made me tremble: I remember one day she set me a task, to trail some lopings of trees the length of a close, to rod pease with; but unfortunately for me, by a slip of her tongue, (which hung very glib) in mistake she ordered me to take the boughs by the small ends, and drag them along; I durst not ask her again, neither durst I disobey her orders,

tho' I knew it was wrong: therefore I took them by the twig-ends, and thus I drew them against the grain, labouring and crying lest I should be deficient in my task, and get a threshing; however I got it for being perverse, as she told me, and disobeying her orders.

Another time, in a frosty morning, as soon as my father went abroad, she raised me out of bed, by grey day light, and sent me into the fields, to pick up some rotten sticks; I knew this was only to punish me, for there was no want of sticks or coals at home; (I was this time about nine years old) my feet were so benumbed with the cold, that I could not stand; whereupon I sat down under a tree, pulled off my shoes and stockings to rub my feet, and to mend the matter, pissed on them, thinking to warm them: thus I sat crying, till found by a neighbour who took me home, where I found her and her children snug and warm at breakfast.

Her way was to pull my ears till blood

run down my shoulders. The neighbours used to say that a judgment fell upon her for her cruelty; for the first child she had by my father, was born almost without ears, for they were uncommonly small. How this happened, God knows; but true it is (for she is yet alive) that her ears are not like other people's. Besides her other cruelties, she hungred me for want of victuals; and many a threshing have I got for stealing meat out of the pantry. One time in particular, I thought she would have killed me outright, for I took some meat out of a pye, for which she took me into the stable, stripped off my cloaths, tyed my feet together, then put a rope to the top of the loft, and between my feet, so hoisted me, the heels uppermost, and thus I hung, like a calf that was going to be killed, till she had tired herself with whipping me. So that, in short, such cruel usage drove me from home. I have several times lain in a wood all night, and would wander several

miles from home, and perhaps be a week or a fortnight before they could find me.

At about ten years of age her two daughters died, and were both buried in one day; this was deemed another judgment upon her. But be that as it will, so it happened. By my frequent elopements, the loss of my little learning, together with the servants and neighbours telling my father of her barbarity, he found she had imposed upon him, that I had been worse used than he expected, therefore again boarded me out at school, where I had golden days for half a year; but she promised to be very good to me, and again persuaded him to bring me home, in order to save expence, and make me walk every day to school, which was about a mile and an half off; however she soon broke her promise, and again drove me away by her ill usage. I was again boarded out, and fetched home; and thus I was tossed about from post to pillar, as the saying is, till I ar-

rived at my fourteenth year. And now I could read, write, and cast accounts tolerably well for my age; but as I grew up I was more susceptible of abuse, or ill usage; so that it began to prey upon my spirits; and I really saw myself more unhappy than the worst servant in the house. Upon these reflections I was resolved to make an elopement, and go to service; but this I knew must be a long way off, or I must be found out and brought home. I now bore every thing with as much patience as possible, till I could meet with an opportunity to put my scheme in execution, which immediately after Easter I effected. As soon as I had got a suit of new cloaths, and a few shillings, which my godfather and some other relations gave me to keep my pocket, I laid my scheme so well, that I travelled fifty miles a-cross the country, and escaped all their search or or inquiry. Being arrived at such a distance, in a strange country, I now began to enquire for a service, but it was

not easy to get one; for being a stranger, and my dress better than the common run of servant-boys, (for I had ruffled shirts, &c.) I was judged by the farmers not fit for hard labour; therefore I was in great distress, before I got a master, for want both of meat and money; insomuch that I did not eat for two days, except a few horse-beans I got from a thresher. The second night I had nothing to pay for a bed with, so went to a farmer's house, and begged that he would let me lie with his servants, which he did; but the hard hearted wretch had not compassion enough to ask me to eat any thing; and I was ready to faint, not eating for two days before, except the few horse beans; and I was too proud to ask for any thing.

While the people were at supper, I went into the yard, and tho' I was always delicate in my meat, and have thought that I would rather die than eat any thing dirty, yet so hungry was I, that I rather devoured, than ate some dirty

crusts of cheese and bread I found in a swine-tub; upon this supper I went to bed, but instead of sleep, I cried and prayed most of the night, tho' under some restraint, for tho' I wanted to pray, I did not want to be heard. But before I go any further, it may not be amiss to inform my reader, that tho' I had got a hard, yet I had got a virtuous bringing up, for my father was a remarkable honest, godly man, and took great pains to enrich my mind with principles of honour and virtue; he made me read the scriptures through and through, and took great pains to make me understand any mysterious point, by expounding them to me verse by verse, and generally dwelt most upon parts that lead to sincerity of heart, telling me that God did not want a babbling multiplicity of words, to make him understand us, that he is closely connected with our spirit, and knows our most secret thoughts, that the more privately we sought him by prayer, the less danger we were of falling into hypocrisy, or mockery of his wor-

ship. My mind being seasoned with such like godly lessons, together with the hardships I went through, had softened my temper, and given me a serious religious turn above my years; for I mostly carried a little Prayer-Book in my pocket, and when I was greatly troubled I generally took the first opportunity to ease my mind by praying and crying. David was my constant companion; and the verse wherein he says "I have been
" young, and now am old, yet have I
" not seen the righteous forsaken, nor
" his seed begging bread" seldom slipped my memory. However, in this my present situation, being almost famished, and destitute of money and friends, I had more need of such salvos than ever. Therefore in the morning I left the family in bed, and took the road to a little town, not more than a mile distance. The first grass-field I met with, where I thought I could not be heard, but only by him to whom I was going to address myself, I kneeled down, and

prayed most fervently, that he would send me some relief, by directing me which way to go for a service, as I had then no other prospect in view. When I had done I found myself greatly refreshed, and thought I was not in the least hungry. I then trudged on to the aforesaid little town, called at a farmer's house, and asked if they wanted a servant. Yes, says the wife, we want a boy. Ay, ay, says the husband, but he does not look like a boy for us. However he began to ask me many questions, as to what I could do, where I came from, and the like. I told him the truth, and my story seemed to affect them. To be short, he hired me for fifty shillings the year, though he was rather shy of engaging at first, but his wife helped me forward bravely, for she called me a bonny lad, said I had an honest look, that she would be bail for me, &c. so that she almost persuaded the farmer to hire me against his mind; but she scarce began to ask me any questions, before I was sola-

ced with a dishful of thick milk-bread, cheese, and cold apple-pye, on which I made my breakfast; but considering how long it was since I had eaten, I was not very hungry, and only ate very little, which I have often since thought on with surprize.

My first work was to thresh wheat with a man, which I performed very well, only my hands blistered at first. My next work was to plow with two horses, and drive myself; this I was master of at my father's: in short I was always tolerable handy, and could learn any thing, at seeing it done once or twice, so that I pleased my master very well. But it was a very hard place; my master and dame (for so she was called) were quite the reverse to my father and mother, for she was a quiet, good natured woman, but my master was a cross-tempered hard-working man; it was seldom a servant could stand him a year: however I kept in his good graces, for he placed me next him at the table, and always helped me

before the rest of the servants, which made them rather jealous with me at first; but it soon wore off, as it became a custom; for he told them that I had something of the gentleman about me, that I was not born to get my living by work, &c. besides I was his clerk to keep his accounts, as there was not one in the house that could write but myself; the wife was the clerk aforetime, chalk was her pen, a post her book, and a dish-clout her receipt. But though I was so useful it did not excuse me from work, for after work at night were my clerk-hours. Before my year was up he wanted to hire me again; but I absolutely refused his offers, except he would learn me to break and swingle flax, and also make me thorough master in the art of growing and watering it; to which, with much ado, he at last consented, and gave me six pounds wage, being thought very high for a boy of my years.

I soon was a great proficient at my work, and before I had been two months

at the business could break and swingle a stone in a day, and so well I handled it, that my flax sold for more than any other man's in the shop.

My second year being ended, I was now resolved, like a lost sheep, to return to my father, whom I greatly loved and honoured; besides, as life is uncertain, and particularly as he grew old, I thought he might slip off, and leave my mother in possession of my fortune; which, if so, I had reason to apprehend little would fall to my share, if she could keep it from me. So home I went, and found all well; my father received his lost sheep with tears of joy; my mother dissembled a little joy, but she would much rather have heard of my death, because, at this time, she had three children by my father, and she knew he loved me best, and would give me the bulk of his fortune.

At this time I was near seventeen years old, so thought myself now able to stand a rubber with my tyrant-mother; however, I found myself mistaken, for

she was yet too many for me, and soon tired me out by fair scolding. My father had as uneasy a life as myself. But while I stay'd at home I shared the benefit of a schoolmaster, that was in the house teaching the other children. We also went to the dancing-school. But much of my time was taken up in going to fairs and markets, for my father liked to have me with him; and indeed I could have been very useful to him in his old age, and in the end shared the benefit myself, had it been possible to live in the house with a shrew. Being tired with continual scolding, I was resolved to make another campaign, though not without my father's consent, which, with much a-do, I obtained. I now thought to work securely, therefore persuaded my father to make a will, lest any thing should happen to cut me out of my fortune, in my absence. We therefore took an opportunity, one day, when at market, to get one drawn and executed much in my favour. And now, thinking myself

secure, I had a great inclination to travel, and particularly to North-America; but, as my mother carried the purse, it was impossible for my father to do much for me; however, with what little I had I set out for Hull, and there agreed with the captain of a ship to become his apprentice for four years, but would not bind myself till I had made a voyage to the West-Indies on liking; but the ship was first to load coals at Newcastle for London, and there load merchant goods for New York; but before the coal-voyage was finished, war with France was proclaimed, upon which the ship was sold, instead of making her West India voyage, and I a broken sailor, though, in short, I never intended being a sailor, any further than to satisfy my curiosity of seeing the continent upon a voyage of liking, which, in my present situation, I could not obtain otherways. As soon as I came on shore at London, I nearly escaped being pressed, which frightened me so much, that I was resolved to re-

turn to the country. Upon this I fold my bedding and sailor's dress, and bought a mare to take me home. But upon my road, about an hundred miles from London, where I stopped to take up my night's lodging, while I was at supper in a public room, in comes a genteel old country-like farmer, and, seeing me a stranger, asked to join company with me in a glass of ale, or punch, which I readily accepted of, and found him to be a facetious, sensible, joyous, old man; and liquor warmed us into as intimate friendship as if we had been long acquainted. He told me his adventures, which I will make free to repeat, word for word, as it yet dwells fresh upon my memory; and indeed I heard it more than once after, as will appear in the sequel of my discourse.

T H E

OLD FARMER'S ADVENTURES.

SAYS my companion, I was born in the neighbourhood where I now live. My father was a substantial farmer; when he died he left me a large farm well stocked, besides some ready cash; but I being young and prodigal, soon found my substance decrease, and at last was obliged to leave the country, above two hundred pounds in debt. At my going off I had no more than about fifty guineas in cash, and had to provide for a wife and two small children. I set my face towards Liverpool, and there shipped myself and family for Dublin. Before I had been long in Ireland, I got to be a gentleman's steward, and my wife his housekeeper. I also took a small farm, and as I increased in cash took another; so went on for nine years, at the

end of which, with the advance of land, &c. I found my leases and stock to be worth about a thousand pounds. I turned all into money, and purchased merchant-goods, such as linen-cloth, &c. and shipped myself, family, and cargo for London, where, if I arrived safe, my intention was to sell my goods, return and pay my creditors, and begin farming again in my native country. But O grief of griefs! Providence blasted all my golden hopes, for an hard gale of wind arose, beat us out of our course, and drove us upon some rocks near Shiels, where the ship beat to pieces. My two children, the ship's crew, ship, and cargo were all lost; but it pleased God that my wife and I should be reserved for further troubles; for we were taken up by the country-people, clasped in each other's arms, with signs of life in us, my wife in her under-petticoat and shift, and I in my breeches and shirt, which was all the cloaths we had, being in cabbin when the accident happened; in my pockets

were a guinea and five shillings. This was our situation when we came to ourselves, stripped of every thing, in a strange country, about two hundred miles from London.

However, the country-people were very good, for they soon cloathed both me, and my wife, and made a collection, and gave us five guineas, to take us up to London, which journey we performed on foot.

I was resolved not to return to my old neighbourhood, since I could not pay my creditors, to the utmost penny, which had been my prayers daily, that providence would enable me to do, but now I was bereaved of all hopes that way.

When we arrived in London, I did not know what way to turn myself, to get a living, for I had never been used to hard labour: however, when I had only one shilling left, and owed seven weeks lodging, I at last got work in a sugar-house, as a common labourer: my wife went with me, to know how she could

find me, to bring my dinner; upon her return home, she was observed by a quaker-woman, to be crying, and in great trouble; upon which, she asked her the cause of her grief; she told her all her misfortunes: upon which, the quaker gave her half a crown to clean her room, (for she was a single woman) and advised her to take close to wash; that she would get her work, and be her security.

She did so, and thus we went on, she a wash-woman, and I a labourer; but she made twice more by her work, than I did by mine. We stuck to this, till we found ourselves worth about ten pounds; but my greatest trouble was that we had no settlement, except in the parish where I was broke, neither could we gain a settlement, as we were married; therefore if we were old, sick, or lame, we might perish for want.

Whereupon I was determined to go to be a farmer's servant for one year: in order to gain a settlement, my wife and I were to part for that year, and then to

meet as strangers, and to be married in the parish church where I had served my year.

Upon our affairs being thus settled, I bought a suit of strong servant-like cloaths, and took my way into the country; when I had got about ten miles from London I hired to a farmer, for a year, and served it faithfully, at the end of which we were married in the parish-church.

My wife had acquired a great deal of money by washing, therefore at our second marriage, we found our portions in cash amount to above thirty pounds; and now our intent was to keep a little shop, as our thirty pounds in cash would gain us thirty pounds more in credit.

But when we were just going to put our scheme in execution, we were both cast down with a fever, which had nearly put an end to our troubles; so what with doctors, and living upon our little money, we were again reduced to two shillings, before I was able to crawl out of doors, and much less able to work; and

I really thought I must be obliged to apply to the parish I had gained my settlement in, for relief.

Weak as I was, I walked out one morning, and observed a feeble old man crying charcoal. I followed him through the streets, and observed all his motions, till he had emptied the bag he had on his back; then he went to a charcoal-cellar and bought another bagful, which cost him nine pence. I had now learned his trade; and as we were much about a strength, I thought myself as capable of following it as he was. I therefore bought nine penny-worth, and cried it through the streets. Though, at first, I was greatly ashamed of my trade, yet custom wore it off, and I found cent. per cent. profit. My wife recovered, and stuck to her washing, and I to my black trade, till I was able to purchase a waggon-load of charcoal, which left me still a greater profit. And now I begun to be a wholesale merchant in it, I left off crying it, took a yard, and laid in sea-

coal also; that in four years I found my stock to be worth five hundred pounds; this stock happened to be on my hands in the year of the thirteen weeks frost, so that in the frost I sold them for double the common price, because the Thames was froze so that no coal could come up the river. When the frost broke, my coal-yards were all empty, and my cash amounted to near a thousand pounds. And now I was determined to come home and pay my creditors, and turn farmer in my old neighbourhood. And the house next to this is the house and farm I then took, and have lived in ever since. After my return I buried my old wife. I then married a young girl, a clergyman's daughter, by whom I have had eight children in six years. She is now lying in with two at a birth, though I am seventy-five years of age.

Thus the old gentleman ended his story, to which I listened with great attention; and, says he, I should not have come here to-night, only that I wanted

to enquire of my land-lord for a servant, as my head man has married away. I asked him if he would hire me. You, says he, I should be ashamed to ask you that question. You need not then, said I; for as my father is a farmer, and an old man, in all probability it may not be long before I shall enter upon farms of my own, therefore would be glad to go a year to service in this country, as perhaps I may learn something new to my advantage. The old man applauded my notion, and told me, if I was in earnest, he would give me the same salary (for he softened the word from wages to salary, according to his high opinion of me) that he gave his last man, which was ten pounds a-year, and I should be used as his son. His offer was as good as I could expect, so took it. But, says he, you have other cloaths more suitable for your place than these on your back (For it is to be observed I was dressed very gay, with ruffled shirt, velvet waistcoat, a super-fine cloth coat, a watch in my pock-

et, and every thing fuitable.) No, says I, but I will go to the market to-morrow to buy some.

In the morning, before light, I set off, got cloaths made fuitable for a better sort of servant, and left my gay cloaths with the taylor, telling him to keep them safe, for in all probability I should not call for them in less than a year. This surprized the taylor, and he began to doubt but I had come dishonestly by them, or was upon some bad design. I saw his suspicion, and thought it prudent to tell him my story, and where I was going to live, or perhaps he might expose me by taking me up to be examined before a justice. Being thus properly rigged, I went to my place; when I told my master the taylor's suspicions, he laughed very heartily.

I was to have keeping for my mare and a score of sheep, above my wages; but this was not much at my master's expence, as there was a good common on which they lived all summer. My mare

was a very good one, and had been covered with a good horse, so that she brought me a foal worth ten pounds at a year old. My sheep too were lucky, and increased.

And here let me remark, that though I have kept my chariot, hounds and hunters, a good side board of plate, entertained the highest company at my table, drank Claret and Champaign; yet I never was so truly happy, as in these two years servitude, for I stayed there two years. Indeed for a while at first, the rest of the servants were a little jealous of me, because they thought me too young to direct them. I sat at table with my master and mistress, which was one of the genteelest in the neighbourhood, for my master had travelled, and my mistress had got a boarding-school-education. It might rather be called a gentleman's than a farmer's table; they entertained good company, and I used to be introduced rather as a friend, than a servant.

As to the jealousy of the servants with

me, it soon wore off, for I had naturally a soft, easy temper, and the afflictions of my youth, together with a great deal of reading, had given me a thoughtful, mild, serious turn of mind; my temper was naturally averse to wickedness of any sort: I was never seen drunk, or in bad houses, and when I have since kept company with the young bucks of the first head, both in Dublin and London, I have by my arguments, kept them out of bad houses, and scrapes; sometimes, perhaps they would call me a methodist preacher, and go in spite of me; however, they never could get me with them: yet, as all flesh have their faults, doubtless, I had also mine; and one I was very sensible of too, and that was pride; which, in spite of all my little philosophy to keep it down, would still rise in rebellion against me, and nothing could subdue it, but the afflicting hand of providence, and then it would as naturally arise upon a change into prosperity, as a weather-glass in a fine day. The love that the

Lord of all bears to his creatures, must be shown by scourges, suitable to the folly we are guilty of: and were it not for such seasonable chastisements, as he sees suitable to each temper, it is my opinion the best spirit that dwells in house of clay would not keep within bounds, but lose itself in one extreme or other.

My chief amusement, for these two years, was reading, at all leisure hours, either history or novels. I was supplied with books from a circulating library, which I read mostly through in this two years. The whole family indeed profited by it, for they generally gathered about me, and I read up to them; so that a young fellow of my cast, among an illiterate set of people, was a wonder of the age.

My work, as a head man, was mowing, stacking, sowing, and marketing, and sometimes plowing; but indeed I had the care of the whole farm upon me, and the labourers obeyed my orders as a master. A gentleman of about five thousand pounds a-year heard of me, and came one

day to dine with my master, by appointment, on purpose to see if he could hire me for his steward. He asked me the question, and made great offers. I told him I was determined never to go to service any more, if the offer was ever so advantageous; that my father wanted me home. But, in fact, I had a view of another sort; for, in the course of my marketing, I had got acquainted with a young, rich, brisk widow, in a great market-town, and had entered into courtship with her, or rather she with me; for she pretended to be in love with me. The affair was so far advanced, that we were to be married a week after. The time growing so near, I begun to consider seriously my case; and, upon reflection, I found I was going at once to destroy all my former schemes; for I had always a great inclination to travel, as soon as I was enabled with money; I also wanted more learning, and likewise yet very young. It is true, the widow was rich and handsome, however she

wanted what I most delighted in, and that was education; it is true, she had natural parts, but they wanted polishing to make them appear to the best advantage: for I looked upon a well-dressed awkward country girl in the same light as I would, were a map-stick dressed up in the same cloaths. Upon all these considerations being added together, I went to the widow, and begun to make some trifling excuses to delay our wedding; that I wanted my father's consent, and the like. This enraged her greatly; and she told me, that I might be thankful to get her, that I had nothing to hope for from my father, that he had altered his will, and cut me off with a shilling, that she had seen both my father and mother, that she had found all this out, though I never would tell her where I came from. All this while I stood gaping like a fool. In short I was quite thunder-struck, not knowing how to answer a word. In fact I almost had persuaded myself that the woman was a witch, for

I had been two years, and had not heard a word from my father, and I had never told any one but my master and the taylor where I came from, and had bound them to secresy. Neither had I spoke of the will to them. However it came into my head, that she had found the taylor out, and that he was the babler. I went immediately to him, and charged him with breach of trust. He could not deny the fact, for he said she greatly importuned him to tell her all he knew about me. I asked him how she found him out to be my taylor. He said, she made a visit to the town where I lived in service, and happened to set up at the same inn I did the first night I was hired; that both the landlord and ostler knew both me and my mare again, and told her that I went to such a market town to change my cloaths; that they were greatly surprized, that a person in the dress they first saw me in, should go to service, &c. All this I thought to be a curious deep-laid scheme of the widow,

which favoured more of money-love than any thing else.

I went and told her that I had found out how she came to know where my father lived, but begged she would tell me how she knew any thing about the will, &c. Being informed by the taylor where you came from, said she, I took a chaise and drove away to the next market town to where your father lives; I took with me a poor woman's dress, and when I came there, I put it on, and set out on foot to your father's house. I begged to warm myself at the kitchen-fire; your father came in smoking his pipe; I told him I had got the tooth-ach, and begged a whiff of his pipe, on purpose to draw him into discourse. In the midst of our chat, I asked him, if he had any children but what I saw; I am afraid not, said he, for my eldest son, whom I had by a former wife, went abroad to New-England between two and three years ago, and my wife tells me she heard he was drowned soon after he went; and I am afraid

it is too true, or he would have wrote to me before this time, but we have heard nothing about him since. Upon this narrative I observed tears fall from his eyes. Your mother came in, and our discourse ended. Whereupon I took my leave, and went to a little public house in the same town, and got some mulled ale. The landlady seemed a little chatty, and told me the history of your whole family; that soon after you went, your father had a great fit of sickness, that your mother told him you was drowned, and got him to make a will, and cut you off with a shilling.

This tale alarmed me greatly; however it was some consolation to hear my father was recovered, and well. The widow thought, that, by me seeing myself thus stripped of any expectation from my father, I should be glad to marry her; so seemed haughty upon the matter. However it had a contrary effect upon me, for I detested her menaces, and immediately took my leave, sold my sheep, and

away I went to my father, who received me with great joy; but it was a great disappointment to my mother, for she was now pretty sure her false scheme would be overturned; that my father, if he knew what was done, would alter his will; but her chief hopes were, that he did not know that he had made one, nor indeed neither did he, for being delirious at the time, it was all her doings.

I now applied myself close to learning every thing the country could afford: I was a very good accountant, could read and converse upon almost any subject, because I had read much; however, I never was a good speller, which is a great loss to me, as I happened to be an author upon more subjects than one; therefore, my works cost me twice the labour, than if I had been a ready speller; this, as well as other misfortunes of my life, I may blame my mother for, because, instead of being well grounded in the first rudiments of learning, by a masterly hand, she would teach me herself, out of an old

family Bible, that was all in the old long way of spelling; and when I got a quarter or half a year's schooling, she soon made me lose it by fetching me back to the bible again, which was a misfortune I could never get the better of.

I had not been long at home, before I took an opportunity to talk to my father, about the second will, that cut me off with a shilling; but he knew nothing about it: therefore it was evident my mother had imposed upon him; but now I had learned more wit than to trust to the changeableness of wills, so persuaded my father to make a deed of gift, which he did; but I was not to touch any thing, during his life, without his consent.

Every thing was carried on very secretly; and having matters thus settled, I thought myself pretty safe for the future; but still was at a great loss for money, to execute my present designs; for I still had a great mind to see the world; but as my mother kept the ballance of power, and always carried the purse, my

father could do little for me; however I in some degree got the better of her, for I bought several large parcels of flax on the ground, likewise took land for a single crop, to sow flax on, and got my father to be bound for the money, and when I had made money of the crops, I left my father to pay for it: this was with his private consent, and indeed I made a good deal of money thus: after which I went up to London, and put myself to the best school in it, where I remained for nine months: I now became a great beau, and kept some of the best company in the beau-monde.

I now had a mind to see Ireland, upon which I bought a suit of genteel cloaths, trimmed with gold, and every thing suitable, but wanted more supplies from my father; therefore hired two horses, and took my journey down to him; but unfortunately for me, when I was within a few miles of Stilton, was overtaken by a genteel man, who proved to be a sharper. He saluted me, with well overtaken,

how far are you travelling? and the like: I told him: 'tis very lucky, says he, I am going to the same place, and shall be glad of your company; but, said he, your portmanteau-horse will not be able to keep up, and it would be cheaper to send your portmanteau by the waggon, and go in the stage yourself from Stilton: I took his advice, so we stopped to dine at Cooper Thorniles, and I discharged the man and horses, wrote directions, and put on the portmanteau. He was very officious, and went over with it, along with the servant, to the carrier's inn: when he had dined, he took his leave of me, because I was to go in the stage.

I expected the portmanteau to follow me, as directed, but it never came; I wrote to the waggoner, and to Cooper Thornil; but all the answer I could get, was, that the gentleman who was with me, took it away again the same day, and said it was his.

Thus I was stripped of all my finery;

however I was still determined on a journey to Ireland, therefore made all the necessary preparations, and got together all the cash I could, and set off for Liverpool, where I got acquainted with some Manchester merchants, that traded to Ireland with fustians, cotton-velvets, &c. They persuaded me to turn merchant, which I did, and laid out all my little capital, which, together with a hundred pounds credit I got, made me a stout merchant, and by which I made a good return.

I had not been long in Ireland, before I was introduced to a worthy bishop, under the name of an ingenious young English farmer. His lordship was then building a large magnificent house, and wanted to reclaim and beautify his poor domain. I laid some plans, and gave him my advice how to proceed. He liked my discourse, advice, and methods so well, that he scarce did any thing without consulting me; and indeed he had no reason to repent, for my advice got him bet-

ter crops than had been seen in that part of the country before, and, at the same time improved his land.

Not long after my acquaintance, he procured me a good salary from the government, for which I was to give my advice to gentlemen, in the point of farming in general, but flax farming in particular.

He was pleased to express a liking for my company, so gave me a general invitation, to make his house my home; and indeed I might justly call him my benefactor, tutor and father; as his house and stable were open for me, my servant, and two horses; his library for my education, and his advice for my guide.

He was mostly all summer on horseback by six of the clock in the morning, and rode about the land till ten. He never was easy, without I was along with him, and though four hours was a long time to find chat for two people, yet we seldom were at a loss for want of a subject; for speak what he would, I could

answer him, for I had read a great deal, had a good attention, which, together with my early adventures, had given me almost a general knowledge; I was so conversant in history, that few subjects could be started, in which I could not bear a part in the discourse: the bishop would sometimes look at me with surprise, and say, he wondered how it was possible for so young a man to have so general a knowledge.

Thus I went on for two or three years, and being the favourite of so great a man, I was carested by the heads of the kingdom; some perhaps on his account, and others for any little advice I could give them, in which I was always very communicative.

I sowed a large parcel of flax-seed, got a hundred pounds premium, and a gentleman of my acquaintance got the said premium two years together, by my advice.

Thus I was happily situated, and getting money fast, for in the course of three years, I had several times taken a trip to

England for a month or six weeks, and made a trading voyage, by taking linen-cloth from Ireland; and in return, English commodities of some sort or other.

And now trade and farming began to gain much upon me (for I had taken much land in Ireland) that I dropped the bishop and my salary, and betook myself to a very uncommon way of life, namely trade in several branches, farming, grazing and travelling; I call it uncommon, so it was, because trade and farming ought to be stuck by; but though I was deeply in both, yet I was always travelling in the character of a gentleman, with my livery-servant, and couple of good hunters; and indeed I was able to spend with a man of a tolerable fortune, for as I was always on the huff, I had my eye upon every thing that a penny could be got by; and as I was universally acquainted with all markets and all commodities, and always dealt with ready money, I had a double advantage.

If any one had asked me what I dealt

in, it would be a hard matter to tell him, for I almost dealt in every thing, and yet in nothing long together: let it be in what part of the world chance threw me, if I saw a pennyworth of any sort of merchandise, if it came within the length of my pocket, I bought it, and I always knew of a market to send it to; but nothing I ever dealt in left me so much profit as horses from England to Ireland, particularly stallions; but indeed it was in a time when Ireland was stallion-mad. In one trip I bought two stallions, one for seven pounds ten shillings, and the other for eleven pounds and a crown; the first I sold for forty guineas, and the latter for a hundred pounds: in short, I often made large profits, and though I was never a drunkard, my travelling expences cost me about half a guinea a day, besides mine and my servant's cloaths, and keeping up my horses, exclusive of ball or play expences, and these I seldom missed, let me be in what kingdom I would.

When I first began my travels, I set

off from Dublin, to the most extream western part of Ireland, seldom keeping the direct road, but made semicircles to any great town my pocket-map (which I always carried) directed me: from thence I crossed the country near the north sea, and made a double to Beltonbet, from thence through a fine, rich country, namely Armagh, Lurgan, Lisbourn, Belfast, Donaghadee; this country rivals some of the richest parts of England for beauty, riches, popularity, and trade, which is linen-cloth, and linen-yarn, which is brought to a great perfection. They are a very hospitable, affable, good kind of people, and very fond of the English: I have received great civilities among them, and indeed so have I through all parts of Ireland. The better sort have not the name of hospitality for nothing, for they in general are the most open-hearted, generous, good natured people I ever met with, and I may be said to speak from experience, when I tell my reader, that it was not from a superfi-

al cursory view I speak, for I can aver that there are few men in his Majesty's dominions of any consequence that I have not been in company with, at one time or other, either to eat, drink, or converse; and this I can prove by my journal, which I always carry about me; but as I grow old, and it large, I believe I must now drop it.

From Donnachadee, I crossed the sea to Port-Patrick in Scotland, and so took my rout through it and the north of England to London, from thence towards Kent, Cornwall, and so back through the west of England, through Wales, to Holyhead, there crossed the sea to Dublin; from thence I made a tour through the fine counties of Meath, West Meath, Longford, and Roscommon. And here let me pause a little, to paint these countries in their deserved light, if I am able. They are not like the north of Ireland, where the linen-trade flourishes (as before observed) and where the inhabitants cut a more equal figure one with ano-

I THE AUTHOR'S LIFE.

ther, and where an easy sufficiency seems to dance in every face. But here things are quite the reverse; the lands are very good, the rich are very rich, and the poor are miserably so. For thirty miles riding from Dublin to Navan and Kells is a very fine country; and so is it cross the country from Kells to Athboy, Trim, Longford, and Mullengar, which may be about forty miles; from Mullengar to Lanesborough (which is about twenty miles) the lands rather fall off both in goodness and inclosures. The turnpike-road, which is very good, leads through several large improveable bogs or morasses. Improvement about Lanesborough seems to be much neglected, the buildings are coming down, and what nature placed in the lands the people live upon, but do not trouble themselves about art. All or most of this place belongs to a gentleman that lives not far from the city of York, who lets too much land to one man, who, instead of encouraging trade, stocks it with cattle, and drives in-

dustury out of the place. Though the town is well situated for the linen-branch, as it lies beside the fine river Shannon, over which there is a good bridge, and a great thoroughfare from Connaught to Dublin. The river is abundantly stocked with fish, such as silver eels, salmon, pike, and trout, each good in its kind. As soon as you cross this bridge, you are in the province of Connaught and county of Roscommon. And now you enter as fine a piece of land as one could wish to ride over, which is chiefly all in great graziers hands, so that the surface is well stocked with rich verdure and fine sheep and bullocks of a superiour kind.

The graziers are gentlemen who eat and wear well, and drink plenty of punch and claret; but the lower sort of people, if I called them very poor at the other side of the Shannon, I know not how to express the misery of these, except that of double-refined poor which is going two degrees below the poorest poor. The hogs in England live by much better.

It is to be observed, that these poor are all Roman Catholics, for there is scarce any poor in Ireland of any other religion; and I have often heard the poor say, that they believed there was a curse entailed upon the Catholics of Ireland, and that it appeared in this particular; in short, they are a very numerous body, that wades through a sea of troubles. I think if I had it in my power to enact two or three laws, I could make Ireland one of the strongest and richest islands his Majesty has, as its situation is good for trade both by sea and land, the surface of the earth, by nature, is in general very rich, but where it is not, it is easily made so: for all over Ireland the interior parts of the earth abound with rich manures, such as limestone-gravel, marl, and limestone. The kingdom is also variegated with variety of loughs, rivulets, and bogs; so that there is no want of fire or water. Likewise the kingdom is very populous, therefore must, with the above advantages, add both strength and riches, were they made useful members

of society, and all to stand by the Protestant cause. The gavel-act, indeed, has done wonders in bringing over the rich, but nothing has yet transpired to change the poor Catholics; they are a set of poor deluded creatures, and it is a pity but an act would pass (which might be easily pointed out) to relieve them.

Mostly all over Ireland the fairs for cattle are very large; but particularly in Connaught; the fair of Ballinasloe is incredibly so for wool, horned cattle, sheep, and horses. I am credibly informed that the customs amount to seven hundred pounds Sterling a-year; which shews its immense value, as the toll for a score of sheep, perhaps worth thirty pounds, is only three pence, and three-pence each for a cow, or any other cattle.

The poor generally sow a little flax-seed, which they buy from a sort of petty merchant, at an extravagant price, perhaps for five or six shillings a Winchester-peck, for which they get a year's credit, till they spin it into thread, in con-

sideration of which they pay about two hundred per cent. If they run in debt for half a peck or a peck of flax seed, they give a note payable before the summer-assizes in the ensuing year; if they miss payment, they are sure to be processed at the assizes; and here the merchant or creditor has another apothecary's profit, of about eleven pence to the shilling; for he will buy a blank process for a penny, and fill it up himself; he charges for the process an English shilling, which is thirteen pence Irish, and perhaps the original debt will not be above two or three shillings; if the creditor do not pay it before the assizes, he is decreed, which is eight shillings and four pence expence.

I saw this profit by flax-seed from my first entrance into Ireland, I knew I could have made a fortune, by it, as I had a far larger capital, than many men I know who have made large fortunes within my time, but I abhor the oppression.

It is generally Roman-Catholics that

are those Jewish-like merchants; for I know few Protestants in thatway; and there is none more oppressive to the poor than Romans themselves. I never saw it yet, but a poor man would rather fall under the mercy of a Protestant, than a Roman, whether a debtor or a servant: but this is only because there is more lenity shewn them; for in their hearts (which I have reason to know well as I have for twenty years never been without many papist servants) they do not like a Protestant. I remember once of being invited to drink tea among a set of Papists, but in a Protestant-house. A bible happened to lye in the window; a Roman gentleman took it up, but upon opening it, saw what it was, threw it down with a kind of disdain, saying I have no business with thee; this kind of behaviour to so valuable a book, drew some questions from me; the woman of the house trode on my foot, not to mind them, neither did I say many words; but like a fire which has been long smothered, and all burnt

up, except a thin covering, when once breaks forth, burns with greater fury; so it was with one of the Roman gentlemen present, for he started up, his eyes in a manner darted forth fire, he grated his teeth, and said, D——n you for a pack of English dogs, for we never had luck since you came among us. He went away, and so did the rest of the company, with a kind of deceitful, triumphant sneer. But indeed I have often seen such tokens of their love, which, if they could have contained it, would have been much better kept in, till they had an opportunity to execute their vengeance: however, I know many Roman families that seem to be well attached to the Protestant interest; but I doubt the word only (seems) is right.

From Abby-Boyl, to Elphin, Castle-rea, Roscommon, Athlone, Ballinasloe, and Lough-rea which are about eighty miles riding: the land is naturally good, and sets in a general way, from twenty, to five or six and twenty shillings an

acre. All over this country, the land brings good grafs-potatoes: what is meant by grafs-potatoes, is that a farmer or grazier will lay out perhaps twenty or thirty acres of old grafs-land to set potatoes in, without dung or manure, for which the poor people give from five to six pounds an acre, and labour it themselves, and when they have done with it, it is ready tilled for a crop of bere or wheat.

A person that did not know the country, would be surprized where all the people come from, to till such quantities of ground as is under this crop, because you scarce see the appearance of houses, they live in little cabbins or huts, built with fods in ditches; the bank of the ditch serves for a wall, a thin fod their covering, a faggot made of whins or thorns their door, and rushes their bed; this may not be always directly the case with every family, but it is generally so; I who was only like my neighbours, have had several families in such: my allow-

ance (when a labourer brought his family upon the land) was five shillings for him to build his own house, and find his own timber.

The upper part of the county of Slego, Mayo, and part of the county of Galway, leading to the western sea, the land is only good in spots. There is a deal of gravelly, rocky, heathy, shallow land intermixed with bogs; however in the worst of it there is every material necessary for improvement. My next tour through Ireland was from Dublin to Cork, by the way of Naas, through the county of Kildare; this county, though not that rich land, as above described in some other parts, yet it is much an happier country, for it grows a deal of corn, which shews a face of plenty. The poor are not so very poor, and the rich are an hospitable good sort of people. It is a fine wholesome air, and stocked with many gentlemen's seats. The Currogh of Kildare, where the races are kept, is a fine dry champaign piece of ground, a-

bout four miles broad, and perhaps twice as long. Land in this county, in a general farming-way, sets for about eighteen shillings an Irish acre, which would be about twelve shillings the English acre.

Port-Arlington is a very pretty country town, and the people very dresty and gay; they are mostly French Protestants, that came and settled here upon the late troubles in France. This town is in the Queen's county. The land in most of this county is a thin, light, gravelly soil, and most proper for corn; it is in general a degree worse than the county of Kildare, though the land sets for full as much rent; but this is partly owing to the country having more large market-towns in it.

In about thirty or forty miles ride, viz. from Dorrow to Limerick, through most part of the county of Tipperary, the country is almost run wild one would think, with sheep and bullocks; for it is hard to see a corn-stack, or a plow at work. It was in this county where the

White Boys have been so troublesome. The land in most parts, particularly Cashel, Tipperary, Clonmel, and down from that to Limerick, is very fertile, would bring great crops of corn, but the great possessors of it are blind to every thing but bullocks and sheep, so that agriculture and every sort of trade are banished; which makes a fine country look very naked, and its poor inhabitants meagre and ragged.

There is some of the richest land that ever I saw in all my travels in this country, and the county of Limerick, called the golden vein, and yet it cuts the poorest aspect as to its poor inhabitants, owing to its being kept under stock.

The counties of Dublin, Carlow, Kildare, Wexford, Kilkenny, Louth, and Queen's County, are mostly corn-countries; and though the land is not so good, in a general way of speaking, by six or eight shilling an acre, as in the counties of Meath, West Meath, Longford, Roscommon, Tipperary, and Limerick; yet they are by far the richest counties, best

improved, more populous, and the people wear a face of more content; also in the north of Ireland, where the linen branch flourishes so much, the land is mountainous and bad, yet the country is rich and populous. All these observations may shew the value of tillage and trade.

The county of Cork is very large, and the land in it is for the most part mountainous and bad. In this county there is very little limestone, marl, or limestone-gravel, which all Ireland, except itself, abounds with. However this county is not without some veins interspersed thro' it of very good land.

The city of Cork is a very rich flourishing place of trade, in the butter and beef way; it is improving, by building, very much every year; it lies low, and is quite hid between the hills, so that you cannot see it before you are quite upon it.

Mallo is a tolerable good country-town, but a place of little trade; it is

famous for a fine spaw, where the quality go to drink the waters in summer; it lies upon a river called the Black Water; up and down this river, for many miles, there is a stripe of fine country. Mallo lies about fourteen miles from Cork.

I made another journey through the county of Wicklow, Wexford, Waterford and Killkenny: the county of Wicklow is famous for early lambs, and fat calves, and indeed I have seen in Dublin market as good veal and lamb, and that in all seasons of the year, as ever I saw in the markets of London; which generally comes from the county of Wicklow. Along the sea-side, from Dublin to Bray, and the town of Wicklow, for about three or four and twenty miles, is a vein of good improved land; but it is only a barren country, most of the road from Wicklow to Wexford, except a few miles round Gorey. Wexford is a dirty irregular-built town, though the people in it are rich, snug and warm, (as the saying is) for it is a sea-port that ships a

great deal of corn, which is grown in the county of Wexford, and particularly in the barony of Fort and Bargy. I have said before, and that with great truth too, that the gentlemen of Ireland are a very hospitable, friendly, good-natured people in general, but they must all submit to the gentlemen of the barony of Fort in particular; for they are the most hospitable, disinterested, facetious set of people I ever met with, and I think I know them all to a man; they are a good neighbourhood, and live in unanimity, and joyously with each other, they keep a good table, which is always open to their friend or neighbour: one can scarce travel above a mile or two in this country, without falling in with a gentleman's house, the proprietor of which is worth from five to two thousand pounds a year, and every gentleman is a farmer; what corn he does not use himself he sells; therefore they are neither too little or great; they are no ways flashy, but live

within their fortune, and yet quite generous.

The common people are all Romans, like the rest of the kingdom, but not so bigotted in their religion, and seem to be well attached to the present government. They talk English well, and also speak Irish one to another, but their Irish differs something from the rest of the kingdom. They call themselves Strongbowyons, that is, they came over from England in Strongbow's time, and settled in this barony, where their off-spring has remained ever since.

This is a very plentiful cheap place to live in, and particularly for wild fowl and fish; their wild-fowl chiefly consist of duck, teal, widgin, barnacle, and winyard. Widgin and barnacle, though scarce eatable in any other part of the world that I know of, are here the most delicious morsel I ever tasted, and remarkably fat. The winyard is a species of fowl peculiar to this place, I believe, for I never saw

them elsewhere; they are not much unlike a widgin, though something smaller and fatter, for if they be shot flying, they generally burst in the fall, by being so immoderately fat. These three sorts of fowl are nearly of one taste, owing certainly to their feeding all upon one sort of food, which is a sort of sea weed peculiar to this coast, and which washes up, and is left by the tide at high water-mark twice in twenty-four hours; so that they are regularly fed, which makes them resort here in such abundance. They can only be killed at night, for all day they either remain on the water, or on some small islands, that are six or seven miles within the sea. At night the fowler is prepared with a long wide gun and a water-dog, he places himself so as to command the length ways of their train of meat; this he can easily do, as he sees where the water has left it the tide before, which is in a long narrow stripe for several miles together; as soon as it is dusky the fowls come up in very great

flocks to feed, so that they cover the ground as close as they can stand; a fowler has nothing to do but to level his piece, and shoot into the lump; he needs only one shot to load his horse home. It is almost incredible what a great number they will kill at a shot. They are generally sold for four-pence or six-pence a-pair.

The land in this barony is much inferior to many other parts of Ireland, being of a thin, light, gravelly nature; but, as they have plenty of manures, and corn much, they are a rich body of people. Wexford town is fifty-nine miles from Dublin.

Killkenny is about fifty-six miles from Dublin; the direct road to it is through a very fine country, viz. part of Kildare, Carlow, and part of Killkenny; the towns you go through are Naas, Killcullen, Timolin, Carlow, and Leighlinbridge; this is the finest ride in Ireland, for so far together, as it is all an inclosed country, without interception of commons, or any

waste land; and fifty-six miles in Ireland is a long way, as they measure with seven yards to the perch: but indeed there is not to be found so fine a ride for so far together in his majesty's dominions, as in Ireland, for if you begin behind Kells, which is to the North of Dublin, and go to Killkenny, which is to the south of Dublin, you ride for about a hundred Irish miles through five counties, namely, the county of Meath, Dublin, Kildare, Carlow, and Killkenny: you have all the road, a good quick set hedge at each side of you, and all an inclosed country; you do not go over an acre of either bog, heath, mountain, common, or any sort of waste land; you are also accompanied part of the way with fine rivers, and all the way, with either gentlemen's seats, or towns, at the end of every two or three miles.

The city of Killkenny is famed for four rarities, air without fog, water without mud, coals without smoak, and the streets paved with marble. How this old

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tradition arose into a proverb, I know not, but they can in strictness only claim two of the four, which is the two last; they have marble quarries near the town, from which they both build their houses, and pave their streets with, but neither the houses or streets cut any better a figure, or scarce so good as other good towns in Ireland, for every one knows that marble is a very rough stone, without great labour of polishing.

The Killkenny coals do not in the least smoke, for which reason they are made use of all over Ireland, to dry malt with, and in Killkenny as common firing. It is true, as they have no smoke, there is not so gross an air, or heavy clouds over the city, as is over other great cities or towns, where the coals have a smoke, which ascends to the clouds, but the air is not exempted from fog for all that, as there is no commanding the clouds, fogs or mists of other countries, but they will blow over it, just as the winds set.

Through the city runs a fine river, over which there are two new bridges, built

of marble, just finished; the old bridges were broken down with a great flood, about four years ago. The bottom of the river is gravel, therefore the water is for the most part clear, but I have seen it muddy more than once.

In the city, and near the river-side stands a fine Gothic building, belonging to the Butler family, which was erected in queen Ann's time, by the famous duke of Ormond: and about two miles up the river, stands the ruins of another of his buildings, which was ornamented about with a large plantation of Ash, which is still growing and healthy, but very large. The city of Killkenny is not very large, or by any means handsome or regular built, but it is rich, and populous, and carries on a good trade in the manufactory of blankets.

For about fifteen miles across the country to Waterford, the land is mountainous, barren and bad; a good deal of it covered with ling or heath.

Waterford lies about twenty four miles from Killkenny, it is a town of a pret-

ty smart trade, and really now deserves to drop that odium that has formerly been cast upon it, of very busy, and nothing to do, like Waterford merchants: but they have now something to do, both in the Newfoundland fishery, and exportation of beef, butter and pork in great abundance; they also manufacture a great deal of frize.

Waterford is not large, but a populous rich town, and improving every day; the land in this county is not good; in general about two thirds is a mountainous, thin, weak land; and any good veins there are, are kept under dairies, so that agriculture is neglected, and the poor also in a starving condition; but a great many men ship themselves off from Waterford, to serve the season in the Newfoundland fishery, for which they will get perhaps fifteen or sixteen pounds wage for six or seven months; which is a great help to this neighbourhood, for they generally spend it in the winter half year.

I made four tours through England, Ireland, Scotland, and Wales; and va-

ried my course every time, so that I scarce left a county or town in them, that I did not see, and if I came at a town or city I liked, I stayed there perhaps a month or two: if I heard any thing new in farming I went to see it, as that was always my chief passion, and I was deeply in it myself, but my reader must allow, that as I trusted it chiefly to servants, I was a sufferer, though my schemes were laid ever so well.

I always contrived it, so as to be each winter in a different city, and seldom missed any play, ball or diversion they afforded. The rest of my time was mostly spent in reading.

When I had seen all curiosities these kingdoms afforded, and tryed most branches in trade, my thirst after travel in some degree abated, and now I began seriously to think of beginning house-keeping, and particularly as I was just now married, by which, and trade, I had acquired a tolerable fortune, and as I was always gay, I now shewed a way, I kept my country and city house, my post and single horse

chaise, hunters, dogs, and servants in proportion; I had a good side board of plate, and entertained the best company. I was yet in trade both by sea and land, I was concerned in ships, and smaller craft, I had lands in England and Ireland, I fed, bred and raised a great deal of cattle, I raised much of both corn and flax.

In Ireland my land was intermixed with bog and mountain; and in order to reclaim it, and carry on a regular course of husbandry, in the best manner I was able; I imported from England ten of the best mares I could buy, all bays, marked alike, and half blood, and a valuable stallion, the same colour; these I proposed to breed from, and to work my ground with; I also imported a waggon, plows, and implements of husbandry of all sorts, with servants, both men and women, and every plan I laid, seemed to promise success in my crops, &c. and doubtless, in the end, would redound both to my fortune and praise, had not Providence pleased to put a stop to my flourishing

schemes, by overcasting my sunshine with a train of succeeding black clouds. Indeed the old saying, that one misfortune seldom comes alone, seemed to be verified in me, for one trode upon the heels of another. I had losses by sea and land, which would fill a volume; therefore I shall only say, that the greatest of all was that of my wife, who died in child bed, and after that rolled one trouble after another, like a strong torrent down a steep hill, for the space of nine or ten years. And though I cannot say they ended here, yet they handed me down to the thirty ninth year of my age; so shall drop my narrative at present, and conclude with two or three remarks thereon.

About the time of my heaviest misfortunes I was visited (doubtless by the hand of God) with what the common Irish call a forewarning of some strange event that was to follow.

It happened that I bought some horned cattle of an extraordinary fine breed, which cost a great deal of money, among

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the rest was a three years old heifer, which cost nineteen pounds, fifteen shillings; she was then in calf by a bull that cost an hundred guineas, therefore, doubtless, was expected to bring a calf worth a deal of money, but instead of which she brought a monster, as my herdsman called it; for before I was out of bed, one morning, he brought me word, that the fine heifer (for so she was called) had calved a monster. I hastened to see it, and found it a strange figure indeed. Its under lip or jaw was like a parrot's beak reversed, for it turned up over the upper jaw, so that it could not suck; a ring of long hair grew out of the sight or ball of the eye; so that it was blind, neither had it any vent for its urine; otherways its was in shape and colour like the cow. In short, I ordered it to be killed and buried immediately. I remember the herdman's wife looked at me with a pitiful look, and said, O, Sir, they are marked whom God marks. I looked upon this misfortune as nothing but chance, therefore took no notice. How-

ever, for fear of the worst (as I thought) I ordered the cow, when a-bulling again, to get my own bull, otherwise I had liberty to have her served with the aforefaid hundred guinea bull, that got the monster; so, when in season, she did get my own bull, and what is very extraordinary, she brought directly such another monster, only that it had vent for its urine; which seemed to be another stroke of Providence, for if it had not, it could not have been kept alive for me to see it, as I was in England when it was calved, and until it was three weeks old; but they kept it alive by pouring milk down its throat, till I saw it. By the hair growing out of the apple or ball of the eye, as aforefaid, it made the eyes swell so that they were ready to drop out of its head. As soon as I saw it, I ordered it to be killed, and buried also; for, I believe, as hungry and poor as the poor people were, they would not eat a bit of it, no more than if it were poison; and indeed the very repetition of the tale makes my heart ake. About three weeks

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after, the cow, among many more, fell into the hands of a mob, where I had like to lose my life. And indeed tho' many were killed, this cow was not; which seemed another stroke of Providence, to shew that she could breed right in another man's hands, but not in mine; for she was sold by the mob, in Dublin, for one guinea, which was ten shillings less than her hide was worth. I saw the man who has her lately, and he told me she had brought him five calves, which he had sold for high prices, which revived some strange reflections within me.

THE END OF THE LIFE.

In order to give my reader a more distinct idea of Ireland, I have added a Table (immediately after the title-page) shewing the names and number of the provinces and counties; with the number of baronies, boroughs, parishes, houses, and acres the whole kingdom contains; also the difference between the English and Irish acre; which must give great satisfaction to every curious reader.

THE
MODERN
FARMERS GUIDE.

BOOK THE FIRST.

CHAP. I.

On Flax.

There are several denominations of Flax,
as follow.

1. White Flax.
2. Seed Flax, in imitation of White.
3. Black, or Bunch-rate, in imitation
of Blo, or black Dutch.
4. Dew-rate Flax.

THESE require each a different management, therefore I shall treat of them separately, except what relates to land or sowing, which will be set forth in this chapter.

Though flax is a nice crop to bring to the hackle in full perfection, yet as to the growing part, there is nothing more easy; and as the climate and lands of England, Scotland and Ireland are really very good for this crop, together with the high price that flax and seed bears, and the great encouragement given by the government to the honourable Linen-Boards of Ireland and Scotland; will, I hope, with the assistance of the following hints, make this branch flourish in these two kingdoms.

Indeed, it must be allowed, that the linen branch in Ireland (take it from the hackle to the bleach yard) has arrived to a height almost to rival any other nation, thanks be to the worthy, honourable, and indefatigable gentlemen in trust thereof.

But as to the raising flax and seed, we may justly pronounce Ireland to be in her infancy, inasmuch that she runs counter in every part that should make for this so valuable a branch.

However, she is rather to be pitied than

blamed, as she has always been kept in the dark, not having either personal, or even theoretical lessons to go by. It is as clear as the noon-day, that no author has ever treated on this subject that really understood one half of it; for it is almost impossible for any person above a common labourer, to be a true judge thereof.

If this be the case, (as it certainly is) how is it possible for a gentleman writer bred up, perhaps in London, or some other great town, to give thorough lessons, himself knowing no more than what he gathers from this and that hearsay.

On the other hand, this branch was never likely to transpire by personal lessons, as I doubt whether there be a man in Ireland, that really knows how to bring a stone of flax to its full perfection fit for the hackle. I have travelled all Ireland over, but never as yet saw an instance of it.

What can we say then, is not this a heavy clog upon the main wheel? Are not we rowing on troubled waters, by

fetching our materials from abroad in a dear and hazardous manner?

Though I was brought up in the midst of a flax country, where every farmer round me had, perhaps, from five to twenty acres, and though I grew a great deal myself, and paid close attention thereto, yet I found myself greatly deficient 'till I betook myself to the manual part thereof; and tho' I was as great a proficient as most of my neighbours, yet when I came to grow flax in other countries, and make use of other waters, &c. I found I had more experience to gain before I was thorough master of it, which cost me very dear, as will appear in the following sheets.

The thorough knowledge is not to be got without repeated experience, a close and even laborious application.

My experiments tell me, that old lay land answers best for flax, as it is generally free from weeds, and is least subject to lodge, and also produces a finer and thicker skin, likewise not so apt to have cankered rusty black spots in it; besides,

flax on such land, is a good preparative for wheat, as it hardly ever misses of a good crop.

All sorts of fallow or stubbles, provided they be enriched with any kind of manure, will bring flax; but as lay-land (for the above reasons) is so much better, I would advise my reader to make it his choice if possible.

Avoid rating flax in limestone-water, this piece of experience I paid very dear for, though it never fell in my way but twice, namely, in Ireland and Wales; in the first, I had my choice of two sorts of water, limestone and bog, the latter was inconvenient, but the lime-stone very near, being a fine standing pool under a limestone quarry.

As I had never heard any thing against such water for flax, I had well nigh determined with myself to water in it; but on second thoughts, as I was not necessitated, I thought my flax too good to be risked by experiments, therefore I escaped for that time.

In Wales, however, I had not the same good fortune, though I did not run into the trial designedly.

Through my land run a small rivulet which traversed some low meadow-fields, in two of these fields, I made in each a flax-pit by the side of the river, which I could fill at pleasure.

At a small distance, was a lime-stone quarry, out of which came a spring, which helped to feed this rivulet; one of the pits was opposite to the spring, and the other above it, so that I could turn the spring below both the pits into the rivulet, which I accordingly did.

Thinking myself well provided with water, into each pit I put four acres of good flax, sowed and treaded as usual; but some person (whether for mischief or not I cannot say) opened the dam that was opposite to one of the pits; thus they served me three nights successively. It had been seven days in the water when this happened, but scarce began to rate, as I tried it every day.

I immediately found the bad effect of the lime-stone water; upon which I took it out the fourth day after this happened, being in the pit only eleven days; but it was quite spoiled and rotten, except some bits in the middle of a sheaf, or in the corner of the pit where the lime water had scarce reached; and this was green and nothing better for going into the pit. In short, it was spoiled to such a degree, that I never made use of a handful of it.

The flax in the other pit that escaped the lime-water, lay there five weeks, and got no more than a sufficient rate, and was so good, that I sold some of it for sixty-four shillings a hundred weight in the rough.

The long time that this lay in the water, shews what difference there is in water; for I had some water in the same land that watered flax well in twelve days; and I have had water in other countries, that has rated flax well in six days.

My experience of deep water cost me yet dearer, as I lost upwards of two hundred pounds worth by it in one year, for the quantity was very large.

This was in Cheshire, where marle pits are very plenty, and some of them very large and deep.

I always knew that flax never rated kindly in deep water, but never so fatally experienced it as here. The surface is warmed by the sun, which will set the upper part of the flax a rating two or three days before that which lies four or five feet deep.

This is one great reason, why it is so necessary to tread the flax in the pit, in order to mix the water, that it may rate even, or in all parts alike.

The water in these marle pits in Cheshire, are very good for rating flax or hemp in, where they are of a moderate depth, but they are often from six to fifteen feet deep.

By a mistake in a direction, I had seventeen large waggon loads of choice

good flax put into one of these large pits, the consequence of which was, that I in a manner lost the whole. But indeed this was not the only time I suffered by deep water.

It is much the safest way to make pits to a proper size, if there be none by chance that are suitable.

In Lincolnshire, it is very common for labouring men to dig pits on the commons, and let them to farmers at so much a year; for rating flax in; not but the farmers have the same privilege of making pits, but they may buy them from a poor man cheaper, as he makes them at spare times, when he has no other work.

It is common for a poor man to sell a pit that will hold seven or eight acres of flax, for three half crowns, and so in proportion.

C H A P. II.

Directions for plowing, harrowing, sowing, pulling, watering, grassing, and full management of white flax till brought to the hackle.

THE ground for flax being fixed upon, you must begin to plow about the first of March, with a furrow of about nine inches broad, and between four and five thick. Take care that all the land be clear cut and turned, and that it lies flat and even with the grass side downwards. If the ground be stony, or the ploughman bad, men with spades must follow the plough to turn what it misses.

By the middle of March the plowing must be finished; and it must then be well harrowed to raise plenty of mold, and to scratch the roots of the grass, in order to kill and set them a rotting. By this they will become a rich manure, for any other crop that may follow; when thus harrowed, gather all the fods and

stones, and throw them into the furrows. When this is done, sow the seed at the rate of eight pecks to an English acre.

Lady-day, or as near it as the weather will permit, is the best season for sowing flax-feed. When sown, turn the harrow the wrong end foremost, and run the ground over once in a place.

When the seed has been about a month sown, roll it, and in about a fortnight more weed it; but if it be lay-land, there will not be many weeds; however, it must be gone over, and none left in, as they are very pernicious enemies to flax.

Being well cleared from weeds, the business is over till pulling time, except it be a very strong crop, and a rainy season; in this case it will lie down or lodge, and not feed well, but be apt to spoil before it is ready to pull.

The only help against this, is to send two men, one at each side the ridge, with turning rods, about the size of rake-shafts; they must put the rods under the

top of the flax, raise it up and turn it over.

This is not very expensive, and will prevent it from mildewing, and otherwise greatly help it, till it be ready for pulling, which must be as early as possible; for this sort, above all others, must be made into white flax, though indeed it will never be so good as that which stands upright, as it will not feed well, and the shove being soft, is apt to flat in the working, and not part freely from the harl; the skin of such flax always is thin and tender.

This sort generally grows on rich land, or under hedges in a warm situation, which draws it up tall and weak. This makes it necessary to divide your crop into white and seed flax, as almost in every field there is a variation, which may be laid out for both sorts, in a profitable manner, provided it be done with judgment, and rightly timed.

As there are several sorts of flax that may be made, and that every sort re-

quires a different management, I will first conduct my reader through the management of the white flax, from the pulling to the swingle stock.

Your crop proper for white flax being fixed upon, if it answers the following tokens it is ready to pull, viz.

If the seed be perfected in shape, but not half ripe: if the leaves begin to wither and fall off, about one third of the stalk from the bottom upwards: if the stalk turn a pale yellow: if the buttons or boles will strip, each separately, and take with them a string of flax to the root without breaking.

The last experiment holding good, is a sure sign that nature has done her work, by giving the flax a good skin, and that it continues all the way up to the top of the stalk; for sometimes it does not get so high. If these remarks concur, your crop is ready to pull, you may fall to work.

Make your sheaves to the size that a band of about eighteen inches long will

reach round each. Make the bands of the small under-growth of flax and weeds, in order to save the good flax, as the water renders it of little use if it be knotted when rating. Be mindful in pulling, that you do not place your hands too low down, so as to pull up any weeds, or under-growth of flax, which will spoil the good both in watering and working. The smallest part of the flax is close under the boles; this is the place to take hold of for pulling.

Your hands being thus placed, what does not reach so high as to be taken hold of, is of no use; leave it on the ground rather than spoil the good with it. As much as is pulled one day, must be put into the water the next; for if it be too much dried or withered, the consequence is bad.

The water most proper for rating flax, is that of the softest nature; bog water is good, and so is that of a clay or marl bottom. But above all, take care the water does not come through or from limestone quarries,

You should make choice of no larger a pit than what will barely contain your flax, for the lesser the quantity of water, the better it will rate. The pit should not exceed three feet and an half deep, and about fifteen feet broad, the length to be proportioned according to the quantity you have to put therein.

It is further adviseable, to have three or four partitions across your pit by the way of dams (which partitions are easily left when the pit is making) and these will prevent the communication of any excess of water.

When you begin to put the flax into the water, lay the first row across the end of the pit, with the root end uppermost; but lay all the rest with the seed end uppermost, and let no part of the flax but the seed end be seen; for before it is pressed down, it will stand almost upright in the pit.

If one cefs or row be not sufficient to fill the pit, lay on another and another, but the water ought to be no deeper than

that three rows at the most will fill. It must be filled to such a firmness, that a man may walk all over it with his shoes on without being wet.

Being thus in the pit, begin at the place you left off laying the last row, to sod it. Lay the sods close to each other, with the grass-side downwards, so that the least bit of the flax may not be seen. The sods must be cut thin, not above two feet long, and one broad; and they ought to be ready at the pit's side before your flax is pulled.

Your flax being thus sodded, you should tread it so as to fetch water above all the sods. But if it be sunk so stiff, that the treading of one man can't get water over the sods, let three or four stand together, or one man carry another on his back.

This often happens to be wanted, particularly when the flax begins to work and swell in the pit, as it will do two or three days after it is put in.

I never had flax better watered than

when it took a great weight in treading: I often trod it with an horſe, and when he diſordered the fods, took care to lay them right again.

It muſt be trod three times a day, namely, morning, noon and night: the more it is trod, the better it is, as it mixes the warm ſurface with the colder bottom-water, which makes it work like new ale in a guile-fat, which works the faſter the oftener it is ſtirred or trod.

This may ſeem an odd compariſon to thoſe that do not underſtand it; however, it is fact, for it will froth and work up ſurprizingly in the time of its rating, and particularly juſt after treading. Let no water in, or out of the pit, while the flax is in it, as the current of the water would chafe or ſpoil the ſkin of the flax, while it is in this pulpy ſoft ſtate.

No certain time can be fixed that it will take in the water; circumſtances in this caſe differ, reſpecting the heat or coldneſs of the weather, the ſoſtneſs or hardneſs of the water, or the goodneſs

or badness of the flax; for good flax will take more rating, than bad.

I sometimes have had flax as well-rated in six days, as at other times in a month, so much do circumstances differ, for the poorer the substance or the body of flax, the sooner it will rot, so consequently will take less time in the water.

The following tokens for the well-rating of flax are to be observed, viz.

As soon as it is put into the pit, it begins to swell and so continues till it is at the height of working; and after this, it falls till the water comes over the fods.

When it has been about five days in the pit, take out a sheaf, and try if it be very slippery, and if the stalks break and start out of the skin when doubled, and if the skin peel freely from the stalk, also if the seed or boles shake off with freedom: these are all signs of its being duly rated: but the safest way is to take a piece out every day, and dry it on a bush; when dry, break and scutch a handful; and then

if the stalk break and part freely from the skin, it is a sure sign of its being sufficiently rated. All these tokens will assist you in this material point of rating.

Your flax being thus rated, take it out of the pit, and let it drip a day on the pit's side. Be careful that it be laid straight in pulling it out of the water, for the doubling of it when wet, will chafe and damage the flax.

When it is drained, carry it to the ground for spreading. Cast the sheaves at about the distance of two yards from each other; and in the casting let care be taken that they do not fall on the ends in a break-neck manner.

Let the spreaders begin at one side of the field, and lay the first row straight, or it will disorder the whole. Spread it thin and even, without lumps, or crossing, and with all the heads one way.

The best land for spreading it on is meadow, lately mowed, or for want of this, a pasture field clear of thistles,

docks, &c. which would keep the flax from the ground, and give the wind an opportunity to blow it away and ravel it, whereby it would be rendered of little use.

Bog might do for spreading on, but the forementioned grounds are preferable; moreover it serves to fertilize the soil by the oily slimy substance being washed from the stalks, by the rains.

When the flax is thus spread, let it lye about eight or ten days, till you observe the skin to rise from the stalks at the top branches, where it is crooked, or has a bend; in these places the flax will rise from the stalks, and almost resemble fiddle-sticks by the hair being stretched along it: when this comes to pass, take care to turn it with turning-rods prepared for that purpose, about the size of a rake shaft, running them under the top end of the flax, and turning it over, leaving it in the same position as before, thin, straight, and clear of lumps.

A good hand will turn two or three

acres in a day. It is not to lie as long after turning as it did before, but however, it is necessary to get some dews or rain on the upper part, in order to give it an even colour on both sides before it is taken up.

Sometimes it happens, when the flax is taken too soon out of the pit, that it must be turned two or three times on the grass in order to bring it to a right consistence for working.

Take particular care that the worms do not damage the flax by drawing it into the ground and chafing it, which sometimes happens, particularly in spring rates, and where the ground is bare of grass. I have seen great damage done in one night by the worms in this case.

When you find your flax answer to the above description of rising from the stalks like fiddle-sticks in crooked places, &c. it is well watered and grassed. Take it then into the barn for breaking and swingling.

But before I go any farther, let me caution my brother farmer to be particu-

larly careful, through all operations, to keep his flax straight and even at the roots, and the root-ends all one way; this being a very necessary precaution in order to make it yield well to the hackle, work easy, and fell well, &c. &c.

As I have now done with the white flax till the breaking and fwingling, I shall drop it for the present, and proceed to the feed-flax in imitation of white.

C H A P. III.

On Seed-flax.

THERE are several reasons to be given, why the seed flax has not a right to be so good as white flax, or such as is watered with the seed on.

First we are to consider that flax-feed is of an oily nature, and that this substance is conveyed through the skin, or bast (as it is called by some) up to the feed, and when it is on its journey, as it were, dispersed through the length of the stalk, it is pulled for white flax, by which it is stopped of circulation, and the oil in the skin remains there, instead of reaching to the feed.

The intent of watering or rating flax, is to rot the stalk, in order to make it part freely from the skin, when dressed, as also to soften, purge, and cleanse, or discharge any unkind harsh matter from it, but the oil being so stagnated, pre-

serves the flax from rotting in any reasonable time, not letting the water have the power over it, as it has over a poor substance: were it possible to extract all the oily substance from the flax, it would be left as poor as the stalk whereon it grows, consequently would rot in the same time, and be rendered as useless.

This confirms my opinion, that the less quantity of water the flax is rated in, the better, filkier, and stronger it is made by the oily substance which is permitted to remain therein; for the best particles gather and cling to the strongest body (being the flax,) which makes it weigh heavy, adds to the strength, and makes it of a kind soft, filky nature.

I am confident, were a parcel of flax-seed thrown into one of these pits, for some considerable time before the flax was put in, so that it might have time to incorporate with the water, it would have a happy effect, and considerably add to the goodness of the flax. I do not say that it would be worth while to do this,

further than by way of experiment and proof.

I have thrown chaff that has had some light feed amongst it, into a pit, and found it to be of service.

An old pit that has had flax watered in it several years, is far better than a new made pit; and one that has white flax with the seed on watered in it, is better than one that has been used for bunch-rate, or flax that has had the seed taken off, only that it turns it a dark-blue colour, which by the by is better than a bad white. All this I have seen experienced by others, as well as myself.

Now, seeing it is so absolutely necessary for the good of the flax to preserve this oily kind nature in it, in order to keep it from rotting, and make it kind, soft and filky; what a piece of absurdity is it to drive it out by drying it over the fire, as is universally practised in Ireland? and indeed by some unskilful farmers in England too, where they are strangers to the true method.

In short, it is rendered harsh and brittle, so that it loses considerably in its real weight and goodness, and thereby loses in its value.

In order to be convinced of this, weigh as many sheaves as will (when broken and swungled) make two stone, one half of which dry over the fire, the other half dress without, and it will be found that when both are dressed, the difference in weight will be from a pound and a half to two pounds; a great loss in so small a quantity of flax.

The experienced flax-farmers are so sensible of the real evils that attend drying it, that they will not suffer theirs even to be dried in the sun. It is true, when it is taken up off the grass, it is dry, though indeed some chuse to take it up in an evening when the dew is falling.

No one that is not necessitated will offer to dress any flax 'till it gets a sweat in the mow or stack, which adds to its soft silky nature, as well as weight; and after this sweat, it is never suffered to be (as above) dried in any case.

But then we are to consider that the English flax-farmers are true judges in rating their flax; which, if not done properly, it is hard to be dressed well, even with fire, and much more without.

There is also other kind of tools to break and swingle it with than any in Ireland. The quantities that are raised in some parts of England and Holland could never be manufactured in such a paltry manner; were fire of no real damage to it, it would add so much trouble and expence of drying, &c. to a farmer's other business, that it could never be duly attended to.

One acre managed in the Irish manner, would give as much trouble as an hundred would in the right method; for when it is once in the barn, it is scarce of as much trouble as corn, having no more to do than agree with men to work it, and this is mostly a set price, except it misses of a good rate, (which may sometimes, though rarely happen) or if the flax be very short; in this case there is a

consideration of an higher price. The common rate for dressing white-flax, is fourteen pence a stone, for breaking and swingling; and sixteen pence for seed or bunch-rate.

High or low wages vary according to the cleverness of the workman, from the difference of a shilling to three on a day, for there are several degrees of workmen: a good workman is as well known thro' the flax countries of England and Holland, as a justice of peace or a sheriff in an Irish county.

It is necessary that a farmer look over his swinglers sometimes, to see that they make no waste; as also that they dress it clean, for on this his success and sale in the market depends.

Some workmen will make the same flax sell higher than others by six pence or eight pence a stone, and all the flax buyers know the good workmen by the lapping or making up of the flax.

A good workman is seldom made, if he does not learn when young, it is far

easier to make a good hackler than a good fwingler, though the former is a trade of apprenticeship, and the latter is not.

The fwingler generally has a pair of scales by him, and weighs the flax as he dresses it, then takes it into his master, who seldom weighs it, till he gets two or three packs together, to take to the market.

A great deal depends on giving flax a good even colour for fetching a good price in the market. Let the colour be what it will, it ought to be of one sort; not to be striped or spotted with black and white, or green and white, grey and blue, or green and yellow, &c.

The misfortune of these mixed colours is got before it goes into the water, particularly if it be seed-flax of any kind; for the prevention of which, I ordered seed-flax, in imitation of white, to be flacked with the seed-end outwards; this prevents the out-fides of the sheaves from being weather-beaten, which will turn them black or grey, so that it will always be of

a quite different colour from the inside of the sheaf, but the seed being outwards, can take no damage, but will ripen or dry the faster for it.

If the bunch-rate flax get a mixed colour, it is for want of spreading even and clear of lumps after the pullers; the same evil the dew-rate is subject to, if not properly spread, but it may happen to white flax two or three ways.

First, when it is pulled, if it stand too long to dry before it is put into the pit.

Secondly, if it be not well and close covered in the pit with fods, and duly trod.

Thirdly, if it be not spread even and clear of lumps in the time of grassing.

All these cautions, a farmer ought to be armed with, if he means to bring this valuable branch to its full perfection.

C H A P. IV.

The pulling, watering, and management of seed-flax, in imitation of white.

THE seed-flax must stand about three weeks longer than the white. It will shew itself to be ripe by the leaves fading and falling off, and the boles turning brown; but beware of letting it stand till the seed in the boll turns brown; for if you do, the seed will be nothing better, and the flax a great deal worse. It is a great mistake to let the seed flax be over ripe.

Observe the same directions in pulling the seed-flax as for white, (only make the sheaves a little larger) set them up in a propping manner, three leaning to each other. In three or four days after, if the weather permits, make them into small field-stacks, no larger than you can reach without getting upon them.

Make them like corn stacks, only with

this difference, that the seed-ends must be outwards, in order to dry the sooner, and keep the stalks from being weather-beaten.

Thus let them stand about a week and then make them over again, by which means the top of the stack will become the bottom. Lay a little weeds, or the under-growth of flax on the top of the stack in order to make it cast the rain, and keep the upper sheaves from the sun and weather.

A few sheaves turned brown or grey, would spoil a great parcel, in the beauty of its colour; for let the colour be of what sort it will, it ought to be even, or else it will not bleach even when in cloth; which is impossible to accomplish without great care before it goes into the water.

Let the stack stand, after turning, about ten days, after which take it into the barn, and ripple the seed off with rippling combs, you see for that purpose in the cut.

Being thus rippled, tye it up in small sheaves, and water it in the same manner

as directed for white flax; also observe the same directions to know when it is rightly rated and grassed; in short, treat it in every case as directed for white flax.

As to the seed, it may lye in the chaff or boles all winter, till it is wanted in spring, at which time riddle it first thro' a wide riddle, in order to take out all the long straws, pulse, &c.

This done, take it to the mill and shell it as you would oats. This is a ready way of taking the seed out without waste, and, on the shelling it may be winnowed at the mill without the trouble of taking the dirt back.

I shall spare myself the trouble of giving any directions about winnowing, as most people are perfect in that art; as it is win in the same manner as corn, saving only as to the sieves, which must be suited to the size of the seed.

And now, gentle reader, please to accompany me, once more, to the field of pulling, and I will shew you another and a more general way of raising seed-flax,

which is in imitation of black or blo Dutch; but in truth, I have seen and reared better and higher priced by the following management, than ever I saw come from Holland.

Observe that seed-flax of all sorts must stand till it come to the same degree of ripeness before it is pulled.

C H A P. V.

Directions for the management of black or bunch-rate flax, in imitation of blo or black Dutch, and to save the seed in perfection.

WHEN you begin to pull the bunch-rate flax, arrange your pullers all in a row, at one side of the field, let every puller take about two yards broad, and lead on at about the same distance before one another.

Spread the flax after them thin and even, with the tops all one way, as white flax is spread on the grass when it comes out of the pit. Take care that the first puller lays his row straight, that it may be a guide to all the rest. As one crooked row will disorder the whole field, and give double trouble both in turning and gathering it up.

When pulled, and thus spread, let it lie till it gets a grey colour, which will be in three or four days, particularly, if there

be heavy dews or rainy weather ; but if not, it will take a longer time.

Turn it with turning-rods, as directed for white flax, that both sides may get a grey colour alike ; by this means the seed will be pretty rash, therefore handle it gently, that the boles do not shake off in gathering and binding, in which there will be the less danger, if you make large sheaves, as there will be less outfides.

Hereupon take it home and beat out the seed with beaters, for that purpose made of a piece of wood twelve inches long, two thick, and six broad, and in this fix a handle sloping ways.

When you begin to beat out the seed, spread two rows of flax on the barn floor, with the seed ends to meet. Then beat out the seed with your beaters ; but observe that you let the beater fall level or true on the flax, or else it will break the handle ; there is some art required in giving a good stroke with the beater.

Tye the sheaves up with two bands, one at each end, and lay one half of the

sheaf with the tops to the roots of the other half. Make the sheaves as large as a middle-sized wheat sheaf.

Being thus prepared, take it to the water, but this must not be sunk with fods, or any other weight, but must swim upon the surface of the water, lying in rows, each sheaf close to another. It is best to put it in pits that have been watered in, as it will have a finer blue colour.

It must be turned every second day, which is easily done with a long fork, having about two inches of the points of the grains bent, in the nature of a muck-drag.

For its being well watered, observe the directions, as for white flax, with this addition only, that it will sink under the surface of the water when it is about enough rated, but not to the bottom of the pit. If it should be left till it sinks to the bottom, there is great danger of its being over done, or in plain terms rotten.

These are known facts amongst the

flax farmers, but for what reason nature thus varies her operations, few trouble their heads to philosophize about the matter.

Were a curious person however, to attend the flax throughout the process of its rating, he might infer a great deal from its rising and falling in the pit; its losing and regaining its spirits, &c. &c.

Being thus duly watered, take it out and let it lie on the pit's side all night to drip; then take it to the ground intended to dry it on; but it must not be spread flat, but set up almost like a sugar-loaf, the sheaves being in two parts, that is, the heads each way it will easily part in the middle, one half of which is enough for a rickle, take it by the top and spread it round you, giving the root-end a good splay, so that the wind will not easily throw it down, press the tops close together, so that as I have observed, it may resemble a sugar-loaf, standing so thin and open, that it will soon dry; but however it will be the better to get a little rain before

it is bound up, in order to wash the dirt and slimy substance off.

The boles of this flax will be well broke by the beater as above directed, so that there will be no more to do than to winnow them, and there is no doubt of the feed being very good.

I have known such bunch-rate flax to sell, in the rough, in Snaith-market, Yorkshire, at sixty-four shillings the hundred weight, and the seed from it, as good as any foreign seed whatever.

C H A P. VI.

Directions how to manage dew-rate flax, with or without the seed on.

SOME set up their dew-rate flax in stooks, after pulling, to dry like corn, letting it stand perhaps three weeks, or a month.

This is a bad way; for standing in the stook so long, in order to dry the seed, tenders the out-sides of the sheaves to such a degree, that they will not take so much rating as the inside, and will therefore be undoubtedly rotten before the inside is enough rated.

The best way is to spread it after the pullers, as directed for bunch-rate flax in the following manner, viz.

Arrange your pullers at one side of the field, and let them spread the flax thin and even after them, with the tops all one way; if there be rain, the upper part will be well rated in five or six days,

but in this case circumstances alter greatly, according to the various sorts of weather that may happen; therefore a farmer must be circumspect, and rub a few stalks at the upper part of the row, between his finger and thumb; and if they break and part freely from the skin or bast, he may then turn it with turning-rods, and let it lie till he finds both sides to be rated and coloured alike. But if the flax be not spread upon the grass, very even and thin, but lie thick and in lumps, the inside will be green or yellow, and not in any degree equally rated to the outside, therefore it will be irrecoverably spoiled.

If the flax be not enough rated by the above method, or that you dare not trust it on the grass, so to be, (for fear of shedding the seed) then about the first of March, when the seed is off, spread it on the grass again, thin and even, and manage it the same way in grassing as white flax; also observe the same tokens for its being well grassed.

I have had flax well dew-rated, with the seed on, by spreading it after the pulpers, as above, without any more trouble; so that it breaked and swungled, and in short answered well every way; but I never knew it done by any one but myself, and indeed, I never ordered any thus but one year; in which, I had twenty-seven acres rated in the above manner, however it is to be noted that it was coarse-bunned flax, which made it the easiest managed thus. For it is necessary it should be so; and it requires a good look out, lest it shed the seed, by lying too long on the grass, or getting too much slavery under the weather.

When it is enough rated, take it home for working. It must be breaked and swungled as other flax.

The seed of this dew-rate flax is undoubtedly very good, and there is also less trouble attends the flax; but it is not so good in quality, neither do I think it yields so well. Indeed it is scarce ever done, but in a country that has not the conveniency of water.

C H A P. VII.

*Directions for breaking and swingling flax,
without fire.*

AS I have reminded my reader to take great care that his tops of flax be kept all one way, and the roots even, it is to be hoped that my former caution may prove sufficient, if not, it will occasion the more labour to the breaker, for it must be very even at the roots, before it be put in the breakers, or he can never make good work.

Wherefore, when he begins to break, let him take a sheaf, and flaken the band, but not loose it quite; then chop the root-end on the ground; this done, pull all the loose rubbish it has gather'd from it; then take a little more than he can hold in one hand, and again jump it even at the root; take hold as near the top as possible, so as to hold it fast; then take a little of the top from under the hand,

bring it round the flax, and lap it round his thumb, by which he may hold it faster than if he had no more than his fingers could meet about; bend it two or three times backwards and forwards, so as to make it supple close to the hand; put it into the breaks, keep it thin spread in them, and as he works it, turn it often.

When the root is broke, let him stroak it smooth, and pull the end; then break the top-end, and the root-end again.

Being thus broke, let him begin to fwingle, holding it in the nick of the fwingle-stock, with the left hand, and the fwingle hand in the right; let him always hit the top of the stock above the nick, and it will glance down past the nick with full force through the flax.

When the root-end is fwingled once over, hackle the top-end with the foot-hackle, to take out the rough tow and shoves which are hard to fetch out effectually with the fwingle-hand alone.

When the flax is good and rightly wa-

tered, it is easily worked, three times going over with the fwingle-hand will be sufficient to clean it from shoves.

If it be rightly fwingled by a good workman, it will be quite clear of tow, to all appearance, before it goes into the hackle; so that it will be easy to count every harle in it, and the root will be as even as a pound of candles, and look as glossy, after the fwingle-hand, as it does after the hackle.

When we see a parcel of flax dressed to this perfection, in Ireland, that will fetch, in the rough, from sixty-eight, to seventy shillings per hundred, we may venture to pronounce that the most essential part of this noble branch, which ought to be the first introduced, has at last found its way into this kingdom.

But though I have given rules, as above, for a fwingler, I am certain it is impossible to make a workman without ocular demonstration.

It is true, if a learner had an old workman to look at, two or three days, these

directions would be of great use to facilitate his instructions.

Whatever you do, beware not to dry any flax with the fire, or even the sun, after it gets a sweat in the mow; for if you do, it will certainly reduce both the value and weight, making it light, fussy, and brittle.

I have often been told by the Irish, that they thought it impossible to dress flax without fire; and on the other hand, when I have told the English that the Irish dried their flax with fire, they wondered as much, thinking them very ignorant for so doing.

C H A P. VIII.

Observations on flax-feed, of its being worn out or tired, and how to refresh it, &c. &c.

FLAX-Seed is a very deceitful grain; for though it may look well to the eye, yet it may not be worth a penny a cart-load, for sowing. Indeed, if it be of a good quality, it is not worse for looking well, by being clean and bright, &c.

The flax-farmers are as much on their honour in supporting the character of their seed, as that of their horses; nay more so; for it is impossible for a person to sell a parcel of seed, at any price, if he be not known to be in a good breed (as they call it:) and he must be well known to be a man of a good character, and his seed well vouched.

It is incredible to tell the difference there is in flax-feed; which I have seen proved more than once; an instance or two I beg leave to mention, viz.

A farmer of my acquaintance lived about twenty miles from the flax country, and though no farther off, yet he was quite a stranger to the branch; but as he was a pushing, scheming man, he made a journey over to the most famous part in all England for flax. He stayed a few days among the farmers; and as he was a smart, sensible man, without doubt, returned as well instructed as the nature of such a journey would admit.

Upon which he ploughed up twenty acres of good old lay-land, and sowed it with flax-seed; which he bought at an oil-mill, and which he said, looked very well; being large, bright, and clean, and grew very vigorously till it was about fourteen inches long; whereupon it made a full stop, began to blossom, and never got to be half a yard in length. He was greatly surprised at such a disappointment; and, as the land was good, could not unriddle the mystery.

However, he was not discouraged beyond hope; as he remembered that the

flax-farmers, (when he was in the flax-country) sold their seed for four pounds per quarter; so that if he made no use of the flax, the seed, he apprehended, would pay him better than any thing he could have sowed his land with.

Upon this presumption, he took a sample, and went to sell it at the time of year; but not a grain could he dispose of, at any price, though the farmers were selling, one to another, at four pounds a quarter.

He wrote me a pitiful letter complaining of the flax-farmers, believing they combined against him, not to buy his seed, in order to deter him from sowing any more.

Hereupon I advised him to employ a person to sell it for him by commission, and recommended a noted flax-buyer to him for that purpose.

He took my advice, by which means he sold his seed at four pounds per quarter. However, it was a bad jobb for all

fides, the buyers lost their crop, and the sellers their credit.

The flax was so short that it could not be wrought; and as to him who sold the seed by commission, he has told me since, that his credit was hurt so much, by selling the said parcel of bad seed, that he never could sell a peck since, in the commission way.

This shews how cautious a farmer ought to be in the choice of his seed. Among many instances of this sort, I shall only mention one more, that happened to myself.

About five years ago, I happened to be one bushel short in finishing about sixty acres I sowed that year, with good seed of my own rearing. The field I finished in, contained twelve acres, and was very good land; wherefore I thought it a pity to let any of the land lie idle.

Hereupon I bought some seed at a venture, which looked well, and grew vigorous as the rest of the field, till it was near half a yard long; and then it made

a full stop, blossomed, seeded, and grew no more, though all the rest of the field, was from a yard, to a yard and a quarter long.

A more demonstrable proof I never saw, for it was put into a sack wherein the good seed had been; and as some grains of the good seed stuck to the sack and mixed, it was easy to gather every stalk of flax that grew from the good seed, being above twice the length of the bad species.

Moreover, the branches of the good seed were long, and one aspiring above another, having a leader above all the rest.

But it is not so with the bad sort, of which the branches are all of a height, so that the top will be as even as a clipped hedge. When flax comes to have such a top, and abates so much in height, it is a sure sign that the seed is tired, bad, and worn out.

Perhaps my reader would be glad to know what I mean by seed being tired,

as also how to help tired seed, &c. which is as follows, viz.

First, let us consider that it is from the hot climates that this seed comes, namely from North America and Riga. It is true that the heat in the latter, only continues about three months; but that is the season in which the flax grows, during which time it is exceeding warm.

The heat in America holds much longer; and it is well known, that plant or vegetable, which produces a fluid substance, will ripen, in fruit and seed, to a greater perfection there, than it will in our colder climates, the skin being thin, kind nature, as it were, crams her receptacles full of rich juices suited to each plant, &c.

This, in flax-seed is demonstrably proved by the oil-mills, as they find a considerable larger produce of oil from foreign new seed, than from seed that has been repeatedly sown for many years in England, though the latter shall look brighter, larger, and plumper than the former.

The seed therefore certainly degenerates by not producing so much oil in our cold climates, but instead of oil a thick skin, and within it a gross pulpy substance; and the longer it is sown here, the more it runs to this harsh unkind matter.

Now this oil is the very life and spirit of the flax; therefore, as this abates in quantity, the flax abates in its length and value.

Without doubt, were a parcel of seed, that is quite run tired in England, taken to those hot countries, and sown, it would in time regain its former good quality.

But, let not my brother farmers be deterred from saving seed in these colder climates under fear of its degenerating, for be assured it may be sown four or five years before the degeneracy can be perceived, and then but in a small degree; so that it will last fifteen or twenty years before it need be changed; but I only mention these particulars, in order to lead the flax-grower thoroughly into this branch.

The farmers in England have a way of resting their seed (as they call it) which is done by barreling it up, letting it stand a year or two without sowing; the longer it stands, the better. This was discovered by chance.

A farmer happened to spare some seed after sowing, he let it stand two years; and, when he came to sow it at the end of that term among some seed of the same sort, but which had been kept sowing each year, it topped it in length eight inches. This accidental experiment has brought on a general practice, as it is found to refresh the seed in a surprizing manner.

There is no accounting for this amendment, otherwise than by supposing that the pulp and skin meliorates by the evaporation of the watry particles, and by the cruder parts being mellowed and melted down, (as it were) into the body of the oil.

Thus any sort of seed of an oily nature, such as rape-mustard, or cole-feed, will produce the more oil, the older it is; and

it is oil (as I said before) which is the very essence of flax.

A farther caution is necessary, that your seed be clear from button-feed, which is a very pernicious weed, and a great enemy to flax; for where this gets footing, the flax-feed must be condemned for oil, be it of ever so good a quality, so fatal is this weed to it.

The seed of this weed is white and very small, not so large as the smallest grain of mustard seed; but there are as many joined together in a bunch as make a head about the size and likeness of a waist-coat button, from whence it takes its name of button-feed.

It grows on a small stalk which twists round the flax, as ivy about a tree, so that there is no getting quit of it either by weeding or swingling, as it will not part the flax along with the shove, and the increase is so very great, that if there be only a few stalks in an acre of flax, this year, the next it may destroy the whole crop.

There is another bad feed which is by

some called wild-willow, and by others corn-bind. This is not much unlike hemp-feed, only not quite so large; it also twists round the flax as ivy round a tree, which makes it impossible to be weeded out; however, as the seed is large, it will stay in a sieve that will let flax-feed through, by which means it may be kept clear with care, and though it is not so multiplying a seed as button-feed, yet it is a great enemy to flax, and ought to be guarded against.

There are several sorts of flax-feed which might be explained, were it worth while to go to the nicety of matters, but as I have no intention to swell this work with matters of speculation, or with any thing that is not of immediate consequence to the farmers, I shall only mention two principal feeds from whence we derive our growth; namely, that of America, and that of Riga.

The former is a bright bay feed, and produces a fine small flax; but the Riga is mostly a dark bay, broad flat feed; it

produces a grofs tall flax, which I am apt to think is moft fuitable for this degenerating climate, for it is eafily cured and made finer by fowing it fomewhat thicker on the ground.

I got the beft breed of feed I ever had from Memell and Riga. This Riga-feed will laft longer good than American-feed, in England or Ireland; but it is not fo beautiful to the eye, neither is it of fo high a price in Dublin as American-feed.

There is a fort of feed which comes from France, when fown here, produces a fine flax, but fo puny, fhort, and fmall, that it is fcarce worth reaping. I once fowed fome (by way of trial,) but loft my crop. I have alfo feen others fuffer by it, therefore would have my reader to guard againft it.

C H A P. IX.

Directions how to make French sieves, and their use.

FRENCH sieves, so called, as they came from French Flanders. The rim is about three feet diameter, and three inches deep; the bottom is made of parchment; two are made use of, and called a set; one of them goes under the name of riddle, and the other, sieve.

The riddle is punched with a hole thus , it lets through the flax-seed being flat, and any round or square seeds stay in the riddle.

The sieve is punched with a round hole thus , which lets through the small round seeds, such as rape, mustard, ketlock, or button-feed, but the flax-seed stays in the sieve. These holes must be punched to an exact size, or they are useless.

There is a particular art in dressing with these sieves, which I shall spare my-

self the trouble of explaining, as it is impossible to be executed without seeing it put in practice; and even then it is not easily learned.

There is not above six pair of these sieves in England, and about as many men who are capable of dressing with them. It is a calling of itself; and, at the time of sowing, they are very busily employed. A farmer pays about two shillings per quarter for to have his seed dressed in them. None requires to be dressed in this manner, save such as have run to weeds; and, in this case, though it is difficult to get the right knack of dressing or turning the sieves, yet the stirring of them any way, will clear a great deal of dirt and seeds out.

The expence of a set of these sieves, at a moderate computation, is three pound; and one set, and two men will clean all the flax-seed for ten or fifteen miles round in a flax country.

C H A P. X.

On Winter-flax.

WE may truly call that winter-flax which is sown in Autumn, to stand the winter, it being about five months longer in the ground than the common.

In my travels through Ireland, I have met with several persons that told me they had made trial of this method, and some speak in favour of it, but there are many more who condemn it.

I was often asked the reason why I took no notice of it in my first edition? My answer was, that I thought it of no utility to the public, as I had tried it long ago, and found it did not answer; therefore I omitted taking any notice of it for that reason. The particulars of the trials I made are as follow, viz. Observing where the flax-seed had been accidentally scattered in Autumn, and that it grew, or

kept green all winter; I concluded that this method might be improved upon; therefore, I was determined to be convinced by a fair trial, and for that reason, in October 1759, sowed one acre, in the middle of a twelve acre field, tilled well, and managed it in every other degree as it ought to be.

About the middle of March following, I sowed the remainder of the said field with the same sort of seed. The winter-flax got to be about five inches long before the severity of the winter came on; after which, it grew no more, but from the first frost, changed its healthy dark green, to that of a sickly pale green, and at spring never regained its former healthy complexion.

After the spring-flax came up to be about five inches long, I set sticks, as marks to both sorts.

The spring-flax grew above one inch in twenty-four hours. But the winter-flax grew half an inch only.

The winter-flax was ready to pull three

weeks before the spring-flax; and at pulling was scarcely thirty inches long: the spring-flax was about a yard and seven inches, so that it was longer than the former by thirteen inches, or thereabouts. The winter-flax branched or spread greatly into top, so consequently produced more feed, which indeed, by the by, is no recommendation.

The year following I made another small trial, which was attended with much the same consequences; therefore, I was thoroughly convinced that winter-flax is not an advantageous crop.

The failure in winter-flax may be accounted for in the following few words, viz.

It is to be considered, that flax in its nature, is trusting to one leader, the top of which is exceeding tender, insomuch that if any thing wound it (ever so little) it will grow no more, but strike or spread out into side branches, which is of no other use, than to bear the seed, being of a poor towey quality, therefore comes off in dressing as such.

If a flie, or what is commonly called a flax-flie, happen to bite or wound the leader, or top of a stalk of flax, when at five or six inches long, it stagnates its growth, and makes it short, coarse and stunty, much resembling a young fir-tree that has lost its leader. I found the frost had pinched the tender leader of my winter-flax, which made it liable to the said ill-consequences.

Another thing is, that flax-land must be harrow'd very fine, at the time of sowing; therefore much wet weather in winter makes it cement, or bake together, which helps to bind the flax in the ground and retard its growth. Any land is certainly better and fitter for a crop, that, after a severe winter, is opened, broke up or pulverized in spring, as it sweetens and proves of great utility thereto.

C H A P. XI.

On flax among potatoes.

IF flax-seed be sown among potatoes set with the plough, (as directed in this treatise,) there is no doubt but it will answer very well, as the potatoes are set thin and in drills, having about eighteen inches between each drill, and about ten inches between each potatoe; by this the tops of the potatoes and the flax does not incommode or croud each other, having room enough for each to flourish.

The potatoes set thus, will spread under ground and produce a far better crop than when planted thick, as the tops, by this warm situation, draws one another up weak and tender; and nature being so profuse in throwing her bounty upwards to support so much useles top, robs herself of the salts she ought to reserve to enlarge the potatoes.

In the year 1765, I received the high-

est premium in Ireland, for saving the most and best flax-feed among potatoes. I saved 48 pecks of good seed, only the land was subject to weeds, and had little pains bestowed to clean it, or I might have had as much more; the potatoes were very good also. I set them with the plough as directed in this treatise.

As soon as the potatoes were planted, I sowed the seed the broadcast way, at the rate of eight quarts to the acre, and, in order to try experiments, I raked and rolled some, but the most part of it I did nothing to after sowing, but left it uncovered, which proved the best crop; and tho' it may seem odd to my reader, yet it may be easily accounted for.

It is to be observed, that flax-feed being of an oily nature, is of a great attraction, insomuch, that if a field be sown, and not covered by harrowing or otherwise, the second day after sowing, it will be impossible to find a single grain, particularly, if there fall in the mean time either dew or rain, or if it be sown in

green mold. Each grain gathers the fine particles of earth about it, being candied (as it were) with mold, and much resembles a comfit, so that after the second day (as I observed) one loses it insensibly, and sees no more of it till it rises at the top of the plant, which will be in about five days after it is sown. The first time I found this out, I was greatly alarmed, as follows, viz.

In 1753, I had a large field ready to sow on a Saturday, and having a call from home, I sent a man to sow the field, and ordered it to be harrowed once in a place when sown. At my coming home I was told the field was sown, but about an acre of it left uncovered. On Monday I sent to finish the field, but the servant returned in a great hurry, telling me that the birds had picked up all the seed; upon this, I as well as the rest of the family, and some of my neighbours, went to see if it was necessary to sow it over again.

We fought a considerable time, and

could not find a single grain; therefore had concluded to sow it over again; but by chance, I found a grain by rubbing the mold between my fingers; this learned me how to seek for it, after which I found several grains candied with a coat of mold, and very slimy.

In order to see the result of this, I left it as it was, without harrowing, and I never had a finer crop; I believe every grain grew, and all (started as it were) fairly together, and not one grain buried deeper than another; which is not the case when harrowed, for when it happens that the seed fall to the bottom of a drill or seam, made by the pins, (which may be the case with more than half of the seed) it will be covered perhaps two inches or more, deep, therefore longer in coming up through so much mold by several days, than that which lies on the surface; therefore it may be justly called a second growth; and a second growth in any crop is bad, but worse in flax than any other; as those plants which first come up are

generally the strongest, and maintain their vigour, by being more open, and exposed to fresh air; but the second or undergrowth, is partly debarred from this advantage, being shaded or kept under by their over-bearing, predominant enemies, therefore rendered small and sickly. I have proved this so often, that I believe I shall never cover a grain of flax-seed more.

Those that would raise flax-seed among trenched potatoes with success, must adhere to the following rules, viz.

1. Never sow flax-seed on land that is subject to red-worms.

2. Do not plant your potatoes nearer than a foot of each other.

3. Never dig your trenches deep to throw up bad mold, but make them wide and shallow, except the under stratum be of a good loam, or black rich halle earth; but if the under stratum be of a fox-sand, a red or blue clay, or of a hungry brown, or red cankered, poisonous earth, commonly in England called ramill, a man

may as well throw his seed into the sea as on such land; and I believe three-fourths of Ireland is subject to such a bottom. Indeed the lands of Ireland are very changeable, it is not uncommon to see two or three different sorts in one field.

On my travels through Ireland, I met with several complaints, that flax missed, which had been sown amongst potatoes, and has often been shewn the ground, which was always attended with consequences as above; therefore it behoves every person, to consider the land he has to work in, or he can never be successful in his enterprizes; but whether the land be good or bad, or whether he means to sow flax among his potatoes or not, it is a great mistake to set his potatoes thick, as by that the land is spent by supporting the luxuriant tops; whereas, if they stood thin, there would be a free circulation for air, and the potatoes would spread the more under ground. This is evident, even to a weak understanding.

*A T A B L E of expence and profit of an
Acre of White-flax, raised in the English
method, as directed in Chap. II.*

One English acre of flax at $5\frac{1}{2}$ yards to
the perch, will produce 55 stone, at
8s. per - - - £ 22 0 0

The expence of said acre is as follows:

To ploughing, harrowing, and sowing - - -	0	9	0
To 2 bushels of flax-seed at 1 os. per - - -	1	0	0
To rolling said acre - -	0	0	6
To pulling - - -	0	5	0
To drawing to the water, at a rea- sonable distance, and sodding	0	3	0
To treading in the pit - -	0	0	6
To taking it out, and spreading on the grass - - -	0	3	6
To turning it on the grass - -	0	0	6
To gathering up and drawing home - - -	0	3	6
	£	2	5 6

T A B L E for Chap. I. 71

Brought over	2	5	6
To breaking and fwingling 55			
stone, at 1s. 2d. per stone	3	4	2
To land-rent, suppose in or about the centre of England	0	15	0
Total expence	6	4	8
Clear profit £	15	15	4

A T A B L E for CHAP. IV.

*The profit and expence on an acre of flax, raised
as directed in the above Chapter.*

To 50 stone of flax at 7s. 6d.			
per stone	18	15	0
To 14 bushels of feed, at 10s.			
per bushel	7	0	0
	£	25	15 0

Expence attending said acre if ordered as
directed in said Chap. 3.

To plowing, harrowing and fowing	-	-	0	9	0
To 2 bushels of feed at 10s. per bushel	-	-	-	1	0 0
To rolling	-	-	-	0	0 6
To pulling	-	-		0	5 0
To stacking, and turn stacking				0	1 0
To drawing home, suppose a mile				0	2 0
To ripling	-	-		0	10 0
				£	2 7 6

T A B L E for Chap. IV. 73

Brought over	2	7	6
To threshing or shelling the seed			
at a mill, and winnowing	0	3	0
To drawing the flax to the pit,			
suppose a mile, and fodding	0	4	0
To treading in the pit	0	0	6
To taking out of the pit, and			
spreading	0	4	0
To turning it on the grass	0	0	6
To gathering up and leading			
home	0	4	0
To breaking and scutching	5	0	
stone, at 1s. 4d. per stone	3	6	8
To rent for land	0	15	0
Total expence	7	5	2
Neat profit	£	18	9 10

A T A B L E for CHAP. V.

*The expence and profit arising from an acre of
flax-feed, managed as directed in the above
Chapter.*

To 45 stone of flax, at 6s. per			
stone	-	-	13 10 0
To 15 bushels of flax-feed, at			
1 os. per	-	-	7 10 0
		£	21 0 0

Expence attending said acre of flax.

To ploughing, harrowing, and			
fowing	-	-	0 9 0
To 2 bushels of seed at 1 os. per	1	0 0	
To rolling	-	-	0 0 6
To pulling	-	-	0 5 0
To turning when spread on the			
flax-ftubble	-	-	0 0 6
To gathering, bringing and			
drawing home	-	-	0 4 0
		£	1 19 0

TABLE for Chap. V. 75

Brought over	1	19	0
To beating out 15 bushels of feed - - - -	0	5	0
To drawing to the water, sup- pose a mile - - -	0	2	0
To turning it in the pit	0	1	0
To taking it out and rickling	0	2	0
To binding and drawing home	0	3	0
To breaking and swingling 45 stone, at 1s. 4d. per	3	0	0
To land rent - - -	0	15	0
Total expence	6	7	0
Total produce	21	0	0
Clear profit	14	13	0

A T A B L E for CHAP. VI.

*The expence and profit of one acre of flax, raised
by the method laid down in the above Chapter.*

To 40 stone of flax at 6s. per			
stone	-	-	12 0 0
To 15 bushels of flax-feed at			
10s. per			7 10 0
Total produce			£ 19 10 0

The expence attending the said acre of flax.

To plowing, harrowing, and			
fowing	-	-	0 9 0
To rolling	-	-	0 0 6
To 2 bushels of seed, at 10s. per			
bushel	-	-	1 0 0
To pulling	-	-	0 5 0
To turning when on the flax-			
stubble	-	-	0 0 6
To gathering, binding, and lead-			
ing home	-	-	0 4 6
			£ 1 19 6

T A B L E for Chap. VI. 77

Brought over	I	19	6
To beating out, and winnowing	o	5	o
To leading and fpreading it on the grafs - - -	o	2	o
To turning it on the grafs	o	o	6
To gathering, binding, and lead- ing home - - -	o	4	o
To breaking and fwingling without fire, the 4o ftone, at 1s. 4d. per ftone - -	2	13	4
To land rent - - -	o	15	o
Total expence	5	19	4
Total produce	19	10	o
Neat profit	13	10	8

C H A P. XII.

Remarks on the foregoing tables.

I Have been very exact in calculating the foregoing tables; therefore my reader may rely on what I have set forth, as I cannot be mistaken, knowing every part of it so well; it is nothing to me, to calculate, or estimate tables of this sort, in any part of the two kingdoms as I have had so many repeated trials, and am so well acquainted with the value of land, labour and commodities, in almost every part therein.

I have fixed the tables, supposing the flax to be all of an equal goodness, as it would be impossible for me to estimate for different crops (a farmer may chance to have) without seeing them: but, he seeing the tables and different methods of management, must be the best judge, which management or table will answer best for the crop he sees himself possessed

of. But in order to assist him as far as I am able, by a theoretical lesson, let him observe the following rules.

1. If your flax be very long and fine, and either does, or is likely to lodge if rain come; if your markets or situation be such, as to have a call for fine flax, then pull it for white flax, and follow the direction for Chap. I.

2. If your crop be a stout fair-standing one, and a degree coarser than the above; if your seed be of a good kind, so that you would be glad to save it, and that you have plenty of labourers to attend at the ripling of it, which indeed is a great clog upon this sort of flax, at this busy season of the year. If your situation, manufactories or markets, be such as have a call for this second-rate flax, then manage this crop as directed in Chap. III.

3. If your flax be thin or short, or inclined to a large bushy top, which will produce a great deal of seed, (tho' indeed this seed should be sold for oil, as it is not good in nature:) if you be scarce of hands

at this busy time of the year. Also if you be scarce, or would not be at the labour of making pits, but have drains, (which if not, running water will do very well to swim this flax in;) if your situation, manufactories, or markets be such as to have a call for this third-rate flax, then manage it as directed in Chapter IV.

4. If your crop of flax be thick, or coarse stalked, (commonly in England called round or coarse bunned;) if your situation be distant from water; also if your situation for manufactory or markets be such as to have a call for coarse flax, so that your regard be more for the seed than flax, then manage it as in Chapter V.

My reader may have one eye upon his crop, and the other upon the foregoing hints, therefore may easily determine which to pursue.

But though it is no more than necessary to verse my reader in every method, yet the first and fourth chapters are what I would chiefly recommend, being the

most profitable and least subject to miscarriages, badness of weather, or hurry of other business, &c. as also the lands and manufacturies of Ireland, are so circumstanced, as not to fail answering for one, if not for both of these crops, almost to every farmer; as there is in most parts of Ireland, a call for both coarse and fine flax, and there are few fields but what have two or more sorts of soil or earth in them; perhaps one side of a field may be in a hollow or bottom, which is generally the deepest and richest soil, therefore will produce a finer and longer flax, which is most apt to lodge.

The hilly part of the field may be gravelly or sandy, which will produce a shorter flax; so between the two, the farmer may suit himself with both sorts of flax and feed too, which will divide his crop, so as to be managed in two seasons, and will prevent hurry, so that he may get easier through it.

Observe, that coarse or thick stalked flax, will take a shorter time in watering

or grassing, than fine small stalked, therefore ought to be watered in separate pits: the former is generally thinner skinned, therefore not so good as the latter smaller sort. Flax will not bear to be sown thin for the above reason, except regard be had to seed alone. Three bushels of sound seed is the true complement for an Irish acre, at seven yards to the perch, and 160 perches to the acre. By the same rule, two bushels are sufficient for an English acre, at five yards and an half to the perch; the proportion is near alike.

C H A P. XIII.

*Directions for sowing and managing Hemp
and the Seed in perfection.*

THE season for sowing hemp is from the first of April to the middle of May. It requires a deep, rich soil, if summer fallow, the better; though stubbles will do, provided they be fine, and well tilled by a winter fallow, and well manured. They must be ploughed early in autumn, and twice more in spring before sowing. After the last ploughing, sow the seed, and if the land be cloddy or rough, pulverize it alternately, with the harrow and roller.

Contrive to sow the most weedy ground you have with hemp-feed, as it will most effectually kill the weeds; and bring the ground into a good tilth for any sort of crop that may follow it; but wheat is most commonly used, and has been found most successful.

There are two sorts of hemp that grow promiscuously through one another, namely, the summer and winter hemp, otherwise called male and female: the male or winter hemp bears the seed; the female or summer hemp bears none, and is ripe for pulling at least two months before the seed or male hemp.

About the latter end of July, the female hemp will be ready to pull, as will be evident from its turning a pale yellow, and the leaves withering and falling off; when at the same time the seed-hemp will be in its full vigour of growing, and the seed scarcely formed.

The female hemp being thus ready for pulling, go along the furrows and pick it out from the male; but, if you happen to break any stalks of the seed or male hemp, pull them up along with the female, as also any small seed-hemp that may happen to be in the furrows, &c.

After pulling, tie it in middling sheaves, with a band at each end; and for watering it, observe the same directions as for

white flax. Rate and grafs it alfo the fame way, obferving the fame tokens in every cafe.

Some will fave no feed, but pull all together, as female or fummer hemp; this is the leaft trouble, but not the moft profit, particularly if the hemp be a grofs, ftrong crop; but indeed if it be a fmall fhort crop, it may answer as well; for, when it is rightly managed in the white or female manner, it will fetch from four and fix pence to five and fix pence per ftone; which is about two fhillings a ftone more than feed or peeled hemp will give. It muft be breaked and fwingled directly as flax, and without fire.

As to the feed-hemp, let it ftand until the feed be ripe, which is generally about the latter end of September; then pull it and tye it up with one band near the top, and fet it up to dry.

When ready for threshing, make an even place for a threshing-floor in the field, and fpread a winnow-sheet, on which it muft be threshed. When threshed, tye it

up with two bands, and water it, sink it with fods as white flax.

When enough rated, take it out of the water, set it up to dry, as directed for bunch-rate flax. See page 38.

Being thus set up, it will soon be dry to take home for peeling. This peeling is good winter work for women and children; if it be large hemp, it will be got peeled for two-pence a stone, but if small, it will cost two-pence halfpenny. At times I have paid three-pence, but that was in a country where the people were strangers to such work; a child of ten or twelve years old, if active, will peel two stone a day, and the stalks are good firing for them, as it is generally peeled at their own abodes.

The hemp-feed is winnowed as other grain; but it is often deceitful, as a great deal of it will be hollow within, and have no kernel, though it will look near as well to the eye as the best; therefore the buyer ought to inspect nicely into it, and to try its weight, which is the safest way

to buy it by, though indeed not a common one.

An acre of hemp well managed, as above, will clear, at a moderate computation, about twelve pounds sterling over and above all other charges. And there are very few farmers in England or Ireland, but what have some land fit for this crop, such as old gardens, or land that is run to weeds, &c. provided (as I observed) it be well tilled and manured, but the weeds will be apt to grow the faster for the manure, if not effectually killed by summer and winter fallow.

C H A P. XIV.

*Directions for ploughing, harrowing, sowing,
and full management of Wheat, till brought
to the bagyard.*

THERE are several ways of managing, and several sorts of lands suitable for this crop. Circumstances differ as a man's notion of farming, and land differ; some farmers sow in two, others in three or four furrow ridges. When it is sown in these ridges, it must be covered with the plow; these narrow ridges are generally sown in the south of England, with them they are called fitches.

The North of England is obliged to lay their land in broad high ridges, because it is more inclined to wet; here some will cover with the plow, others harrow their wheat in, but the last is much the best way, for two reasons; first, the wheat lying near the surface is more in the power of the sun to nourish

the roots, therefore will be earlier ready at harvest; secondly, a great deal less seed will sow the same land, which I shall explain more hereafter.

Some farmers will sow wheat after barley, others after beans, clover or turnips, but the most general method is to sow wheat upon fallow from oat stubble. I have done all this, but the best and most suitable land I ever found for wheat, was a fallow from either natural grass or clover lay. One experiment is as follows, viz.

In 1757 I plowed up a poor barren piece of mountain, which had a gravel bottom at about four inches deep, the surface or sod was naturally given to heath or ling, with a mixture of rushes, and a kind of a coarse, benty spear grass; all this formed a tough sod.

I plowed it the first time in September, in about a month after I harrowed, and in the beginning of November I plowed it across, this cut and turned any that was missed the first time plowing; in

the latter end of this month I harrowed it again, and soon after plowed it in two furrow ridges, that is, I lay two furrows back to back; by this it lay dry all winter; and by laying ground thus, it is more exposed to the air, having more out-sides, and the frost also has more power over the roots of grass, weeds, or the like, to kill them.

In the beginning of April I harrowed it across, which levelled the ridges; by this time it was reduced to a tolerable fine mold. I then gathered it into broad ridges, and plowed it every month till Michaelmas, which deduced it to a very fine corn mold; the roots of grass, heath, and every rubbish it had produced, were all melted to a manure; the ground was turned greasy, black and rich; so that I am clear that it was out of the power of any dung, or manure of any sort, to give it so suitable a dressing for corn, for it was not only rendered rich, but perfectly clear of every seed or weed, and so often turning, the land was both warmed, sweetned, and

cleared of all worms, grubs, and the like, as such frequent plowings gave an opportunity for the birds to prey upon them.

I finished sowing my wheat about the last of September; some I covered with the plow, but the most part I harrowed in, which I found was the best wheat at harvest. I only sowed six stone on an Irish acre, which is at the rate of four to an English one. I used the pickle that is specified in this book. I used no sort of manure, for indeed the land wanted none, though it was so poor a wild piece at beginning, but a finer crop of wheat could not grow; there was no sort of weed amongst it, and the ears and grain in them were remarkably large. I sold it for seed for the highest price then going in Ireland.

It, upon an average, produced thirty nine Winchester bushels to the English acre, which was a surprising crop for land that was not at buying worth half a crown an acre; it has been good sweet pasture

ever since, for it was laid down with grass seeds after it produced a good crop of barley the year following. In the course of the fallow it got eleven plowings and three harrowings.

I had forgot to observe, that a piece of said field being wet at wheat seed time, I left it for oats at spring, and it produced an amazing great crop. The straw was six feet long, and in strength like reeds, and well hung with corn.

In the same year I sowed a piece of land with wheat that was worth twenty five shillings an acre, and was dunged for potatoes the year before, which notwithstanding, was not so good a crop by one third as the above fallow land.

This shews that there is no management equal to fallowing out of the sod, because the roots or fibres thereof dispersed or mixed through the earth are there killed, and consequently putrify in that situation, which naturally causes an equal fermentation through all the corn mold; and every one will allow that ma-

nure of any sort has not half its value without being well mixed in order to incorporate with the earth so as to bring on a regular fermentation.

These considerations together with the enriching oily sulphurous particles that the earth imbibes from the air every time it is turned up, proves the value of lay fallow above any manure whatever, particularly for corn; however this is only when it is done effectually with judgment, for if the farmer only gives his land three or four ploughings, instead of raising manure he raises enemies to his crop, because the grass, weeds &c. are not effectually killed but kept alive, and a rusty mossy cankered sod lies at the root of his corn, which is rather a nuisance than of service to it.

Clover-stubble for fallow is another valuable piece of improvement, and preferable to the former; because the roots of clover being of a tender hollow frame naturally, rots almost as soon as turned up, so that three or four plowings will bring

it into as good a tilth as a dozen will natural grafs; in this case a years rent is faved; for there is time enough between mowing the clover and wheat feed-time, to get the ground in order.

Some indeed will only give their clover-stubble one plowing, then harrow their wheat in; this may do when there is no natural grafs or weeds amongst the clover, and that the farmer give his land a top dressing with some sort of fine manure, such as ashes, foot, falt, or pidgeon-dung.

But the best method is, if the farmer can spare it, to plow in a crop of young clover, that is, let him eat his clover all spring, and till his natural grafs-pasture gets a head about the middle of May, then take out his stock, and in about three weeks or a month, he will have a crop sufficient to plow in.

The best time to turn it under is before it begins to flower, in its most tender state; for if it stand till the stalks be of a firm texture, they will take so much a

longer time to rot, which will retard the second plowing too long; but if it be plowed in, when full of juices, it rots or putrifies immediately; the roots also being stopped in vegetation while the juices are in them rot the sooner, and are a very great manure, being full of salts.

If the fallow land be flat, wet, or inclined to hold water, it is best to raise it in broad high ridges, which is easily done in the course of the summer fallow.

As to the depth that land should be plowed, this is a point not easily fixed upon; every farmer knows his own situation best. A great many reasons may be given why land should not be too deep plowed, yet some land requires to be plowed much deeper than others. I look upon eight inches to be as deep as any land ought to be plowed, neither ought any to be plowed less than four. However, there is one general rule for a farmer to go by, which will always keep him right as to this point; and that is to keep his plough-share under the roots

of grafs, weeds, or any other crop that his land may bear; or in other words, under the fod; for it is this that compiles the fod.

It is a common term among farmers, fuch land is deep, and others fhallow; which would be all one as to fay, this fod is thin, and that thick; for it is the thickness or thinnefs of the fod that determines the depth of the land; and as I faid, it is the roots of fuch vegetables, which grow thereon, that makes the fod: if their food lie deep, they follow it; and if fhallow, they go no farther than it lies. What lies below the fod is called dead earth, and it is an eafy matter to diftinguifh what is dead earth, and what is fod, or corn mold; for if you take a fpade and dig a pit a yard deep, you will find the fod to break off or part from the dead earth.

Examine the fod, and you will find thoufands of little roots or fibres interperfed or wove among the earth to the under part of the fod, but nothing of this

appears in the dead earth, or under stratum; and were we to strip off this sod from a piece of good land, and till and sow the under stratum, nothing would grow therein, at least for several years, till it was enriched by the salts of the air, or some other manure, which must raise it to a lively active body by fermentation; and even in this case it would be long before it would come to be good land, if ever it did: it is true, where land is thin or shallow, it may be thickened by touching lightly upon the under stratum, and manuring well; however this must be done with discretion, or a farmer may destroy his land.

The way is only to turn up a little at once, and work that well by tillage, and manure, before he enters upon more, and not be too covetous in making it too deep all at once. It is better to have four or five inches of good earth than ten of bad; for four inches is as deep as most crops require, and if his land be shallow, he

must suit it with such crops as will do with a shallow soil.

At the first forming the ridges, harrow them across in order to draw some of the mould into the furrows again, or else they will be stripped too bare of soil; alternately gathering and harrowing thus across, will give them an easy agreeable rise in the middle to any height you choose to have them.

If the land be inclined to be very wet they require to be so much the higher. The judicious spectator will judge the proper height and breadth to make the ridges, according to the depth of the upper stratum. If it be shallow, the ridge must be so much the narrower, in order to give a proper sheed, because there will not be a depth of earth to raise them high enough without entering too deep in the furrow among the dead bad earth or under stratum.

When the ridges are got to a proper height, they must be put down one time, and taken up or gathered another, by

which they will be always kept in a right position or form, and the sole will be firm and have a proper sheed, so that it will be impossible for water to lye soaking at the roots of the corn to starve or chill it.

You must lay a little more manure than common on the furrows, as they will be stripped bare of soil or corn-earth, at the first forming the ridges, but what surplus of manure you lay on the furrows, you may keep from the middle, as that will be the richest part for some years to come.

As soon as the wheat is sown, gripe it across the ridges, in the lowest places of the field, where the water is likely to stand, in order to give it a free passage when it comes. Make your gripes not above eight or ten inches broad, and spread the earth as you throw it up.

It is common with a good plowman to throw the plow out at a gripe, and to leave about ten inches unploughed at each side, which will keep the sides firm,

and the gripe in the same place; so that there will be no more trouble to clean them, than shoveling out what loose fods the harrow draws in, and in this case, two men will drain a large field in a day.

If you intend clover stubble for wheat, the clover must not be eaten in the spring, as it would drive the crop too late for mowing, which otherwise would be off in the beginning or middle of June, this being a sufficient time to fallow the land for wheat, as clover stubble is generally mellow, and easily tilled. The stubble must be plowed in as soon as ever the clover is off, giving it no time to grow. Three ploughings are a sufficient fallow for clover stubble.

If you intend natural grass-land, or corn stubble for a summer fallow, it is well judged to plough it as soon as the busy wheat seed-time is over. Take up the ridges in this ploughing, and gripe them in order that they may lie dry all winter to meliorate with the frost, &c.

As soon as the busy feed-time is over in spring, plough it again. There can be no set number of times ascertained for the fallow being ploughed, the oftner the better, and it is more enriched and sweetened by the sun, air and frost. (See notes.)

When you see the weeds or grass begin to grow, this is the time in which it must be ploughed; as one intent of fallow is to kill these pernicious enemies, by which means they become a species of manure, and as the roots rot and incorporate with the earth, they are rendered of all manures, perhaps the most excellent.

The general custom is, to fallow or plough four times, if the summer be dry, and the ground not very weedy; but in a wet summer, the grass, weeds, &c. grow faster than a dry one, and consequently require to be often torn up, lest their roots strike too deep for the plough to turn up.

Your ground being well fallowed, the best season for sowing this crop is, from

a fortnight before, to a fortnight after Michaelmas.

Four stone of wheat is sufficient to sow on an English acre, though I know some of my brother farmers will laugh at this small quantity, but I assure them, I would rather sow three stone than four, as by experience, I am thoroughly convinced that the throwing too much seed in the ground is a loss both as to seed and crop.

If you harrow your wheat in, the ridges must be raised to a proper height before the grain is sown, and your furrows made straight, and take care not to harrow their edges down to fill the furrow, but leave them as open as possible, that there may be a ready conveyance for water.

The best method of sowing with the harrows is first to level the ground by running the harrow once in a place before the seed is sown, as the same seed will sow double the quantity of ground, with a certainty of a much better crop;

and the reason is plain, for when the land is rough or uneven, by stubble, weeds, or the like, gathering before the coulter, and falling off in lumps; or if the land be rough with clods, whole furrows, or the like; upon throwing the seed it naturally bounces, or tumbles off into the hollow places round it; so that suppose a hillock be a foot or two diameter, it is a chance if one grain stay thereon, but in a hollow near it you may perhaps see twenty grains in the breadth of your hand, so that they come up so close or near together, that they draw one another up weak and tender, each preventing its neighbour from spreading either in root or branch.

Sow twenty grains in the compass of twenty inches, and sow a single grain in the like compass, and you will find its roots to spread, and fill the ground as much as all the twenty; and such a plant will never fall, or what they call root welt, be the ground ever so light, or sandy, as it has a broad bottom to stand on, in the

nature of a candlestick, every fibre of the root round it acting as stays or props; and the more it spreads in the root, the more the top stools and spreads also; and as the root is not cribbed in room, its fibres are thick, strong, and healthy; and the larger they are, the more food they can take in to feed the stalk, for each strong fibre or root is a mouth to the straw and corn. It is a prevailing opinion, that every fibre or spron, which proceeds from the main root, will produce and feed an ear of corn if it has justice done it as to room.

On the other hand, if we turn our eyes again on the twenty grains upon twenty inches only, we shall find that each fibre proceeding from the root is as small as a pin, and instead of spreading horizontally, they have not room, but are obliged to seek their food downwards as far as their starved feeble weak roots can go, which is a very short way; therefore instead of having a broad bottom to stand on in the nature of a candlestick, they stand tottering, and are as subject to fall

as a walking-stick, were it left standing upon the ground, only just entered in a loose soil, therefore would be subject to fall with every blast of wind. This is the reason our corn in England is so liable to mischances of blasts, mildews and the like; because if it be any thing of a forward growing summer or spring, the ground is overloaded, therefore it lies or at least leans low, so that the wind cannot have free circulation about it to shake off the dews or wet; and if it happen to be in small inclosures where the hedges or trees obstruct the wind, the malady is heightened; so that by thus indiscreetly sowing too thick, a great many crops are lost from the best lands in England, for indeed the best land has the worst chance. The only tolerable cure for this malady is, for two men, one in each furrow, to stretch a rope between them, and go up every ridge to strip the heads off the corn, and shake off the wet; this should be done in a morning when the dew has done falling.

Thus a feeds-man indiscreetly throws his corn away to create himself trouble; for it is plain if all he sows was to come to maturity, he must at least reap fifty bushels for every one he sows, allowing only one ear from each grain of seed sown, because in a middling crop an ear of wheat will produce fifty grains, therefore if a farmer sow two bushels on an acre, he must reap a hundred by this rule, even without the branching of a second ear from one root.

This may demonstrate to us that three fourths of all the seed we sow in the common way perishes some way or other; and there is no doubt but it all vegetates at first from the kernel, for by the same rule that one grain will grow, the rest will, as it all lies in the same situation, as none can fall deeper than the bottom of the furrow when plowed in, and the bulk of the corn generally lies there, so that by the same rule that one will grow they all will, or else a farmer would lose his crop intirely; therefore the

seed certainly all vegetates, and does not perish in this stage, but must in the stage of grass-corn.

If we look over a field of wheat when it is just wained from the kernel, we shall in the breadth of a hand, perhaps in many places, find twenty or more plants; in others you may set down a foot and not touch one, for every hillock, stone or clod the corn does not come through but round them, so that the plants are confined so close together in spots that they absolutely eat one another out; (and as the saying is, the weakest goes to the wall) for they die and melt away, so that you insensibly lose them.

The accustomed quantity that is generally sown on an acre is ten stone, therefore if it be equally spread, each grain would lie within an inch and an half of each other one way, and three inches another; as there is about one million three hundred and forty four thousand grains of wheat in ten stone, so that in fact if one half of the ground be covered with

clods, stones, hillocks or the like, the remainder has not much more than half that space to grow in. Then how in the name of wonder, can any sensible man expect his corn to come to perfection thus crowded!

I happened to be at a gentleman's house the last wheat-feed time, he was sowing a field with wheat at the rate of sixteen stone to the Irish acre; they were sowing it under furrow, that is, they sowed the seed and then plowed it in. The field was about half sown when I saw it. I told him that he was throwing a great deal of seed away; upon which I advised him to plow his land first, then harrow it once in one spot, and after this sow only eight stone on an acre, and that was too much, but I did not care to frighten him into too great an extream at first, but left him to try by degrees.

However to convince him for the future, I with my own hands sowed half an acre with two stone, weighed after it was steeped and limed,

The said gentleman told me since, that several people had been looking at it, but, as he told his men not to shew the half acre, they could not find it out (as they expected) by its thinness, for in all appearance it was as thick on the ground as that at sixteen stone to the acre; as to what was sown at eight stone to the acre and harrowed in, it appeared to be vastly thicker than that at sixteen stone to the acre.

This can be accounted for no other way than as above, that several plants came up close together, and others thin.

After you sow the seed, harrow it, but not too fine; it is better to be a little rough with small clods for three reasons.

1st, Such clods keep the land open, not letting it run cement or bake together so much as over fine land will do after heavy rains.

2^{dly}, These clods break the wind and keep the corn warm in its most tender state, which is at the time of weaning from the kernel; for a clod of three or four

inches high is as good shelter to a blade of wheat as a hedge five or six feet high to a horse or cow.

3dly, And lastly, these clods with every shower of rain, and after every frost, keep melting, crumbling, or falling down about the roots of the corn, which nourishes and feeds it to a great degree; and then comes the roller at spring, which finishes the landing by closing the clods or earth about the roots of the corn, which confirms and establishes it in the ground, closes the pores or surface of the earth, and helps to keep out the drought at this scorching season.

If you cover your wheat with the plow, which is by far the worst way, take care not to bury it too deep, fix your plow to go smooth and even, and at most not above two inches deep, and four broad; gather your ridges close, and leave your furrows straight and open.

When thus sown, it must be well gripped in order to lie as dry as possible. This done, all further trouble is over till April,

at which time it must be rolled, and in the latter end of May weeded, and nothing more till harvest.

It is a great mistake to reap wheat too green, as I have often seen it done particularly in Ireland. Some people believe the flour is whiter for it (this I doubt) but if this be the case, it is no way equivalent for the loss there is in the substance.

As corn reaped green is always productive of a small, weefened, thick-skin'd grain, for when the straw is cut before the grain is filled, nature is cut short in her journey, and obliged to take up her lodging in the straw, therefore the grain is robbed of those juices which alone can fill its skin, and keep its body plump. One grain of corn in this well fed state is worth numbers of the small sort; therefore let it harden well in the ear, and till the joints of the straw turn from a green to a straw colour; the juices or sap being ascended from the joints of the straw will give you sure warning of the grain's be-

ing ripe; for as long as the stem keeps green, the grain keeps feeding.

When this token is verified, reap it, and set it up in flocks, cover them with head sheaves at night, and in the morning take them off, in order to give the corn-ends the benefit of the sun to harden.

This may carry an appearance of expence and trouble along with it, but the benefit or advantage of getting the harvest early in will by far exceed the cost; as two men will cover and uncover a great deal in a little time.

It must stand in flocks a few days before it is put into field-stacks, and to continue in in field-stacks about three weeks before it is brought into the hag-yard.

The field stacks is the Irish husbandry, and which I approve of greatly, as it puts the farmer out of any fear of bad weather, or heating in the barn or reek.

These stacks are made like a cock, or by some called a pike of hay, tall and narrow, shaped almost like an egg, carried

up small till the top can be headed with one sheaf, when opened.

The size of the stack ought to be according to the length of the straw, as all the corn ends of the sheaf meet in the middle of the stack, and the roots outward. If the stack should want filling within, choose out sheaves for that purpose, who are clear of grass or weeds, for it is those that are most apt to heat.

The size of the stack is according to the nature of the corn; if the straw be long, perhaps a waggon-load and a half; but if short, a waggon-load only, in each stack.

If the corn be full of weeds, examine the stacks by thrusting in your arms, a day or two after it is stacked, lest it should heat, and if you find it too warm, draw a few sheaves out at the windward side, and let the wind enter the belly of the stack, this will immediately put a stop to its heating.

As to threshing or winnowing, it is not

worth while to say any thing about them here, further than to give the plan of an useful fan for winnowing all sorts of grain with. Observe the following Chapter on feed.

C H A P. XV.

On twelve different sorts of Wheat.

FIRST, Red Lammas,
Second, White Lammas,
Third, Red bearded Wheat,
Fourth, Red Kentish Wheat,
Fifth, Long-ear'd Wheat,
Sixth, Grey Pollard,
Seventh, Great bearded Wheat,
Eighth, Summer Wheat,
Ninth, Double ear'd Wheat,
Tenth, Yellow Lammas,
Eleventh, White ear'd Wheat,
Twelfth, Egg Wheat.

With a great many others not worth speaking of, being like some of these, chiefly similar variations and not distinct species, neither are some of these worth a farmer's notice. The two first are suitable for any land in the north of England, Scotland, or Ireland; and the farmers in England prefer them to any other, being, as

they call them, the kings of wheat. Indeed, I take the white lammas to be the hardest of the two, and most suitable for cold land; but the red is the fairest flour and thinnest skin, and a good yielder.

The summer wheat is an early kind, for if it be sown in February, it will be as early as others that are sown in autumn, therefore might be useful if the first should miss.

The next in value to lammas wheat is the long eared wheat; this is a very great yielder, and a hardy kind, that will answer very well for the cold heavy lands of Ireland, and north of England. I have had great crops of it, but it must be sown thin, as it stools much, and when thus thin sown, will produce an ear six or eight inches long. It is of the bearded kind, which annoys birds so, that they cannot prey upon it with pleasure, therefore preserves itself; and I think it as good, if not preferable to any other for the north of Ireland, where the land is cold, strong, and coarse.

The egg wheat will answer well in the south of Ireland, or in England, where the lands are light and sandy: it is a tender, thin skinned grain, and produces a very fine flour.

The Kentish wheat is a good sort, and very near a-kin to red lammas: any of the other sorts of wheat may grow here, though not with that success. Were I to enlarge as much upon every different sort, I should swell this work beyond my first intention; therefore shall confine myself to what I have already said, being the most proper for these kingdoms.

C H A P. XVI.

Remarks and Illustrations on Wheat.

THE human mind was never more ripe for invention or improvement, than in the age we now live, insomuch that something new, (worth notice) is starting out from almost every art and science: but is there a subject more laudable or worthy of emulation than this before me? He who layeth himself open to conviction has a condescending, worthy, good mind. Again, he who labours with a good intention, and sends his works into the world, for the improvement thereof, may justly claim an impartial hearing.

What I next propose to shew, is the great advantage of fallows, as may appear by the table hereunto annexed, and reasons as follow. But it is not the common method of fallow I propose to treat of; as from that we could only expect

the common success. The method at present with the best sort of farmers, is to plow only four, or at most five times for a fallow; but did they know the rich qualities the air contains, and how many valuable, fertilizing, or enriching salts or sulphurs operate, work, and enrich the furrow every time it is turned up or exposed thereto, they certainly would stir themselves in good earnest to give their land a dozen plowings at least.

When land lies long unstirred or unmolested, it runs or cements together in one close or consolidated body, till it turns sour; the spirits, nitre, or sulphur it contains becomes dead, inactive, and useless. Whereas every time it is turned, there is an attraction from the air to the earth; these two bodies meeting together, divide the particles thereof by fermentation, and mollify it to a friendly substance; so that the vegetable creation, which is intended to feed therefrom, has a free passage for their tender roots or fibres, to penetrate and search after the

food peculiar to each plant, as doubtless every species of the vegetable as well as the animal creation has their favourite food, and under the same surface too, but some may lie deeper than others; as for instance, one soil is very proper both for wheat and beans, yet the latter feeds deeper than the former, as it strikes downward like a parsnip, while wheat runs horizontally and feeds upon the surface; so that we see it is absolutely necessary to stir up, pulverize, and open the earth, in order to give each plant an opportunity to search after its own food.

It is common for farmers to sow corn amongst large clods, perhaps as big as a horse's head, but upon inspection we shall seldom find the roots to strike in or feed upon them; it is true their food lies in said clods, but the hard, close, obdurate state in which they are permitted to remain, resists the entrance of their tender roots.

It is common to see in clay land, large furrows turned backwards and forwards

during the summer fallow, without being pulverized, which is certainly a piece of bad husbandry, because there is a great many seeds and roots of weeds inclosed therein, which will not vegetate or grow till they are broke or melted by the severity of the winter's frost or rain, &c. and when they do get loose or at liberty, they grow to the destruction of the crop.

C H A P. XVII.

Philosophical reasons how the air is impregnated with salts, sulphurs, and manures, that enrich the earth when often turned or exposed thereto.

MANY good reasons may be given to support an argument, and shew the many fertilizing qualities that are mixed with the air; and how such bodies of earth and sulphur ascend and descend to enrich the earth, and feed the vegetable creation; but as nothing strikes the senses of man so much as ocular demonstration, there is one simple tryal he may make without expence, and which cannot fail, but prove what I assert to be true, viz. take an onion when dry, or before it begins to grow, weigh it very exact, then lay it upon a bright clean oak table; in spring it will vegetate, and grow into a large top, then weigh it again, and you will find it greatly augmented in weight

to a surprizing degree. We are fure this advance was not from the table (for it would juft be the fame if it was hung up with a bit of thread) and there being no other fubftance near, muft convince any one that what it advances in weight, is collected from the air; and where this fubftance comes from is plain from the following corroborating circumftances, and which fhould induce a farmer often to turn up the furface of his acres, that they may be at work, feeding from the elements, while he is fleeping in his bed.

There are two great ends we gain by good tillage; Firft, by turning or opening the earth, we give a vegetation to every root or feed therein; and the next plowing, thefe weeds are turned under in their tender ftate, by which they quickly rot, putrify, and caufe a fermentation in the earth; fo that the fact is, we raife a manure by the deftruction of the weeds.

Secondly, Every time we open the

earth, we give it a dressing with the cleanest and richest of all manures, viz. the oily particles that are impregnated with the air. It needs not much philosophical reasoning to prove how full the air is of such manures, and how natural it is for said manure to subside, fall and incorporate with the earth, and particularly when it is fresh opened, as then it has the greatest attraction.

Is it not well known to every farmer, that soot is one of the richest of manures? will he not allow also, that soot is the produce of smoke, and smoke of fire? it is also visible, that though some of the smoke clings to the sides of the chimney, and remains there as soot; yet the greatest part rises and disperses itself in the firmament.

But indeed, their being dissipated, perhaps it may be past his understanding how they should descend or return to enrich his land.

The clouds which we see floating about in the firmament are composed of

three elements, namely, earth, air, and water; and sometimes the fourth element fire intrudes therein, which causes a convulsion, from which proceeds thunder and lightning, as fire and water cannot agree together.

The water is drawn up, or attracted, by the heat of the sun, at different periods; the earth is divided into very fine particles, and mixed therewith; so that these two bodies being incorporated together, are born up by the air, and exhaled by the sun; so keep ascending till they come at a fine thin serene air.

Being arrived in this region or latitude, the heat of the sun, together with the thinness of the air, rarifies and divides these two bodies of earth and water; for the air in this region is so thin and fine, that it is impossible for any thing bred in this gross air here below to subsist, were it taken up there; neither could an animal bred there, subsist or live here; and without doubt, the regions above are inhabited by animals of some

fort, as well as ours. This brings to my mind a tale I shall give my reader in the next chapter.

The two bodies, or elements of earth and water, being thus divided, again descend to the earth, one as rain, and the other as earth, in mist, fog, or dust; but we may be sure that this rarified earth is of the richest kind, being mostly made up of oils, salts, sulphurs, and the like; because it is first extracted either from the smoke of a fire, steam of a pot, the breath of our mouths, or the steam of a dung-hill, &c. all which bear a part in forming or composing the clouds.

It is the multiplicity of such bodies that screens us from the scorching heat of the sun, otherwise we should be as much incommoded with heat as when it breaks through these clouds in the hottest day in summer. Seeing then by the above reasons, how the salts, or oily rich particles of the earth evaporate, and again descend to enrich our furrows; ought not we to take all the advantage reason points

out, and to apply the bountiful blessings of God judiciously; so that none of his handy-works may be in vain, or lightly set by; since God saw it was very good, why should not we strive to improve by his goodness? he created the world, perhaps, in various sorts of soils on purpose to try our ingenuity on; for it would be as easy for him to make it all good, or even to make corn or bread grow without labour, as it was to rain down manna in the wilderness for the murmuring children of Israel; but the great omnipotent God saw that it would not make for our good. Did not he that made man know which was most conducive for his welfare? he knew that if we had provisions for picking up, our appetites would be cloyed; we should not have that pleasure we now have, by being obliged to labour the ground, and raise our provisions by the sweat of the brow. It is intermissions of success and disappointments, that makes life sweet and agreeable, and prolongs it too by exercise.

Though a gentleman, or a farmer, may not labour with their hands, yet their attention is kept awake, and at work; whereas, I say, if the land was all good, and required no such exercise, or thought to improve it; we should of course be an indolent, stupid, dull, heavy people; therefore doubtless, God thought it as necessary to checker our world with good and bad land, as it was our lives with pleasure and pain; though I make the comparison in land only, yet it might be carried through all the scenes of life.

C H A P. XVIII.

A wonderful tale told to the author by Richard Adams, now gardener to a gentleman in the county of West-Meath in Ireland, and the author's philosophical remarks thereon.

RICHARD Adams about thirty years ago, lived in Belturbett in the county of Cavan in Ireland; at which time there happened a great tempest of thunder and lightening; the thunderbolt, as he term'd it, fell upon a gentleman's house in said town, entered the side of a chimney at the end of the house, and passed down into the cellar, where it burst and dispersed, and left a strong sulphurous smell therein.

Immediately after the storm was over, upon viewing the breach in the chimney, was found upon a stone in said breach, a bird or fowl, about the size of a small duck, and every way like one, only that it had

no feathers, and its wings appeared to be of leather, like that of a bat.

When it was found it had some little life in it, but immediately after died. It was laid on a plate; and an apothecary wrote to the lord of the town, in whose house it was found (who was then in Dublin) the answer was to have it preserved in spirits, but before the return of the post, the bird was all dissolved to water; even its very bones, so that nothing but water remained on the plate, to the astonishment of people present.

As strange as this account is, I have no doubt as to the truth of it, as the man that told me it, is yet living, and bears a good character.

If it be true, how can it be accounted for, otherwise than that this animal was bred in a distant region unknown to us, and when the air was so fine and thin, that it could not even subsist as matter without life, in this grosser air of ours.

I suppose that it was conveyed from it's own country to the place where found

by being wrapped up (as it were) in a ball of wind perhaps something like our whirlwind blasts, and which was a tail or attendant of the flash of lightening that preceded it, and split the house.

Thunder and lightening are occasioned by fire, water and wind meeting together; which elements being of so different a nature, they cannot agree but breed a tumult or an eruption in the firmament, and doubtless every flash or ball of fire, which breaks forth from the main body, is forced therefrom by a ball or blast of wind at its tail; which makes it so precipitate in its motion, that I doubt not but were any animal wrapped up in this ball of wind, it might be taken a thousand miles in a minute, and left without hurt, provided no fall ensued after the separation from the ball. How often do we see and hear of several people or cattle being in company, killed or wounded by lightening? some wounded and not killed, others will have no sign of hurt on their bodies, yet killed; I apprehend those that have no sign of

hurt about them, have been struck with the ball or blast of wind which thins or opens the air to such a degree, that it instantaneously stops all the avenues of respiration, and leaves the body lifeless.

It sometimes happens that a patient recovers shortly after being struck; this is when the void space of the air is narrow, so that it closes again and is ready at the mouth to supply the suction of the lungs at the second or third gasp: in such cases the machine is only sickened, the rapid fluids of the body and lungs are only slackened in their motion, and not entirely stopped.

I verily believe that if a person thus struck motionless or dead to appearance, so that there be no external hurt on the body, was immediately (before the blood was cold) taken and tossed in a blanket, or swung backwards and forwards, it would recover the animal to life; as such exercise would raise an action or motion in every part of the body, and cause a teeming or friction of the blood or fluid matter through

all the veins and blood-veffels, and alfo caufe a motion of the lungs, which would force open the trap door (as it were) of the gullet or wind-pipe, which immediately fhuts as foon as the inward parts are motionlefs or void of breath; and when this door is fhut, it is an immediate bar between life and death, which may be affected by feveral caufes, fuch as ficknefs, or old age, or a fudden furprize, and thinning or making a void fpace in the air, &c. &c.

When the fine machinery of the body is out of order by ficknefs, the avenues leading to the heart, fuch as veins, blood-veffels, &c. are in fome part or other ftoped of their ufual circulation, by a thick, putrified, corrupted matter, occafioned by cold; that is, the blood or fluids are impregnated with air, which cools and deadens their motion; and though this may only happen to, or in a fmall part of a vein, or tube, yet it obftructs the paffage of the reft; and if fuch obftruction fhould happen in any of the large

tubes near the heart, the danger of death is more immediate, because the pressure is greater, and the heart more quickly deprived of relief; as all the blood in the veins flow to the heart, and causes a lively motion by its heat, which keeps continually boiling and playing against the lights; and by such motion or flapping of the lights, the breath or air is inspired and expired through the throat or wind-pipe.

In the throat there is a stopper or catch, that we may term a door, which only opens by the internal air or breath playing upon it; if there be none such within, it shuts; and without, it stays the support of life which is air.

As to old age, the juices of the body dry up as it advances, and the animal spirits gradually slacken in their motion; for the blood that in youth is quick, hot, and rapid, in its passages through the veins, is, as age advances, slow, cold, and languid; not having heat or force sufficient to play upon the lungs, and keep the

passage open by a free circulation of air; for we are to consider that the blood running with such swiftness through the veins, causes a friction, so consequently keeps or raises a heat therein; and the hotter the blood is, the thinner and quicker in its motion. It is allowed that the blood of a young person (in health) at the heart, is as hot as the water in a boiling pot, and keeps boiling as such constantly.

As to death by a sudden surprize, it can only happen to human beings that have a mind susceptible of great pleasure and anguish. The idea of the mind is infused by an intellectual air through all the parts of the body; their avenues or leading springs are open to the brain, which takes in external matters of sight and sound through the eyes and ears, which are the senses that cause pleasure and pain of the mind.

Therefore any thing that suddenly surprizes these delightful organs with pleasure or pain, instantly stuns or stops all

the moving fluids in the body, so that the pulse forgets to beat, that is, the blood forgets to run its usual course, so as to keep the lungs playing; for want of which motion, they clap or close together; and the stopper of the wind-pipe also closes and keeps out external air (as in the former case) for want of a motion within to force it open, therefore death must ensue.

As to death caused by a blast or ball of wind, when at the tail of a ball of fire called lightening, as before mentioned, it can only happen by a compact body, being very precipitate in its flight, so that it passes through the firmament with such velocity as to make a void space, causing the air to rebound back a considerable distance; and as an animal takes its breath once every second of a minute, or thereabouts, if such an expansion of the air happen near the body of such animals, the interior air immediately rushes out of the mouth into the void space; upon the discharge of which, the lungs are expand-

ed in expectation of a fresh supply, but being disappointed by the said vacant space, they close and become motionless; and the door of the throat also closes, so that the support of life is shut out, and must doubtless die, without means can be used as above, to cause a new respiration while the blood is hot.

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S

C H A P. XIX.

*An easy method how to manage seventy one acres
of land, and to clear yearly for ever 129l.
16s.*

WERE the seventy one acres of land very good, the above profit would not be very extraordinary; but I am clear, nay positively sure, that any strong course land, which in nature is suitable for wheat, will bring yearly the above sum, if it was not aforetime worth one shilling an acre; as without doubt, it is possible to plow such till it would bring a crop of onions. I lay the plan at seventy one acres, viz. sixty for the profit-crop, and eleven to maintain the four horses; but however this is only to proportion the thing; a man may have more or less if he manage it the same way, will reap the proportion of profit for as much as he occupies thus.

Therefore, I say, suppose a man have

fixty acres of barren land, no matter whether it be stubble or grafs, and that he himself was poor, or not willing to go to the expence of manure, let him divide the fixty acres into two parts, thirty in each, let him provide four horses, two plows, and two plowmen, these make two compleat teams at two horses in a plow, and one man to drive and hold each.

Begin to plow one of the divisions about Michaelmas, and keep said two teams constantly going, to plow this thirty acres, as often over as they can in twelve months; (it need not be harrow'd above twice, and that when it is rough after the first and second plowing,) begin always the next time to plow where they began the first, by this method they will plow it over once every month in the year, and by going the regular round, there will be a month between every plowing; this ground being so loose and mellow, that without doubt, the two plows would plow the thirty acres in fifteen days, therefore

they would have the remainder of the month, for chance of frost or rain, or other unforeseen hindrances or business.

Being thus tilled, there is not the least doubt but this land would bring as good a crop of wheat as could grow, and better than if it had been manured ever so high; a crop of this sort without doubt, would produce thirty two bushels on each acre English measure, and as it would be sure to be clear from weeds, (and if not sown too thick) a full bodied grain, I may state the price at twenty shillings a barrel, or five shillings a bushel, for four bushels is one barrel.

The eleven acres that you see I allot for the four horses, must be nearly worth about fifteen shillings per acre as I have stated it; but if the other be bad low-priced land, it is the more to the tiller's advantage; however, to put it out of doubt that it will leave the profit I have mentioned, I have left the rent for it altogether as good land in the following table.

You see I have allowed five acres of

grafs to graze four horfes, three acres for meadow, and three acres for oats, which allowance I am fure is fufficient to maintain four horfes well, as land letts now in the interior parts of the kingdoms.

A Table of expence and profit of sixty acres of wheat, managed, divided and fallowed as set forth in the remarks thereon.

EVERY farmer knows his	l.	s.	d.
own situation best, but I will suppose the land in a farming way, worth 15s. an acre, and as a crop of this wheat would have two years rent upon it, it would amount to	-	-	-
	45	0	0
To 24 bushels of feed-wheat, at 4 stone to an acre at 5s. per	-	-	-
	6	0	0
To reaping and binding at 6s. per acre	-	-	-
	9	0	0
To stacking, drawing home and thatching, at 4s. per acre	6	0	0
To tythe, at 5s. per acre	7	10	0
To repairing the plow-irons	1	0	0
To two mens wages at 9d. per day through the year	23	8	0
	97	18	0

TABLE on Wheat.

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Brought over	97	18	0
To eleven acres of land, to maintain four horses; five acres for grafs, three for meadow, and three for oats	8	5	0
To mowing and making the hay, at 4s. per acre	0	12	0
To feed-oats for three acres	1	4	0
To plowing and sowing three acres with oats	1	10	0
To mowing, binding and carriage home	0	15	0
Total expence	110	4	0
To 240 barrels of wheat or 960 bushels sold at 20s. per barrel or 5s. a bushel	240	0	0
Clear profit	£ 129	16	0

Note. The straw is worth the threshing.

C H A P. XX.

Remarks and Illustrations on Agriculture in general.

THE estimation of the table of sixty acres of fallow wheat is absolutely very moderate, and I verily believe the profit would be oftener more than less, as I have had myself, and have known others to have had ten barrels and upwards, on an English acre, which is one third less than an Irish one.

The whole body of husbandry tells us (with some sort of surprise) of the lands in Cheshire, producing twenty barrels of wheat on an acre; if the author means twenty barrels on an English acre, at five yards and a half to the perch, it would be a very extraordinary crop indeed; but if he means so much on a Cheshire acre, it would be nothing uncommon; for he should consider that one Cheshire acre makes two English acres, and about fourteen perches over.

The following bad consequences may accrue from plowing land too deep, particularly in the wetter or colder climates of Ireland, and the northern and western parts of England, viz.

First, the best of the soil which is the upper stratum, is buried, and the bad under stratum turned up in its place,

Secondly, there is double the quantity of soil to enrich, for certainly it will take as much more manure to enrich a furrow eight inches thick, as one four, it also takes more labour in plowing, &c.

Thirdly, these four or five superfluous inches are lost when enriched, as corn never strike (or at least ought not) above four inches downward perpendicular.

Fourthly, corn never ripens so early or kindly on loose, deep earth, as it does when it has a firm sole to grow on. The sole is the second stratum, or firm earth which lies next the corn-mould; the corn-mould or upper stratum is what we plow, or the grain grows in.

Lastly, the four or five inches of super-

fluous loose earth is soaked with water, and rendered like mortar, which being out of the reach of the sun to warm, in any reasonable time, keeps the corn cold and chilly, lying at the roots (as it were) like a sponge; indeed, it will give straw, but the corn never ripens early or kindly, having a thick weezened skin, but little substance.

I have heard people endeavour to support an argument in favour of deep plowing, by saying they have traced fibres ten or fourteen inches deep; this I grant, might be the effects of deep plowing, by which means it encouraged the roots to strike downwards into a deep cold climate (as it were.) This is one strong reason why deep plowing ought to be attended to with great caution, as it encourages or entices the roots out of their own natural, warm, richer earth, being the upper stratum, into a deep, cold chilled earth, which is the effect of a thick-skinned, poor starved grain, and a late harvest; whereas on the contrary, if the under stratum was kept

firm, and unmolested, the water would be obliged to return into the furrows, trenches, and drains, having little or no admittance into it, and the roots, instead of striking downwards, would run horizontally, and keep in a warm rich soil, being near the sun, to nourish and warm the plants, and the earth about them.

It should be the farmer's chief care, to assist nature all in his power, in order to get his harvest early, before short days and bad weather come on.

But though reason joined with experience, proves that deep plowing and trenching is useless, and in a great many lands and places, of bad consequence; yet there are lands and climates that agree with it.

In the south of England, for thirty or forty miles round London, the climate is very warm, and the harvest, at least, six weeks earlier than in Ireland, or the north of England, being forwarded with a warm, sandy, gravelly soil.

There is nothing more common than

for labourers to go from the north of England and Ireland, reap the harvest in the south of England, and be at home soon enough for their own harvest; however the oats may be helped forward by necessary cautions, and good management, as above.

This shews the material difference there is in these climates; then why should not different management be necessary also?

There are also some lands in the south of England, particularly in the soil of Kent, in Kent, and in some places down along-side the river Thames, which consists of a deep rich loam, so that let one plow ever so deep, there is no danger of throwing up bad earth.

There is also such land in Marchland in Lincolnshire, and in the fenny country along-side Trent; and in these lands, there is no doubt of good crops, provided they till sufficient to kill the weeds, the understratum being as good, if not better than the upper in said land, and one freshens another by being mixed.

But this is not the case in most other parts of England and Ireland.

In Cheshire, the farmers cannot plow in some places above two or three inches before they come at a hungry poor red earth, by them called ramil; when thrown up, will lye in lumps or clods upon the surface, and will not melt with either sun, rain or frost.

These farmers are very careful not to throw any such like up, as they have proved it by experience to be very pernicious to corn, and encourage weeds. I have seen such like thrown up out of potatoe trenches, in a great many places in Ireland.

In order to be convinced of the folly of over deep plowing, observe a field under corn, that has been trenched for potatoes, as in Ireland, and it will be found that the corn, over the parts where the trenches have been, will be green when that on firm ground is ripe. Indeed, the earliest is put backward, though in a less degree, by having this cold mortar, (as it were) lying at each side of it.

I can compare these potatoe trenches to nothing better than a hot bed reversed, for as we dig a trench and bury dung therein to raise an artificial heat, so are these trenches filled with the best of the soil and manure, while perhaps they are half full of water; and so lies (as it were) in a trough, which compleats an artificial cold bed.

But the evil does not end here, for, (as I observed) in plowing too deep, in lieu of this good soil and manure, so buried in its place, there is thrown up a poor hungry earth which poisons the land, and encourages weeds.

So that, in short, there are so many arguments to condemn, and so many real evils for one good property, that attend plowing and trenching too deep, that I wonder people's eyes are not yet open to see their error. Indeed I do not doubt but some of the more thinking sort, get a stagger now and then, when they see such demonstrable proofs of corn growing green over these trenches, till Mi-

chaelmas perhaps, and dung, &c. buried in them.

But prejudice in favour of an old custom, is so predominant, that it is hard to persuade men to enter heartily into a change. I have many a time represented these evils to farmers, and the consequences attending them, which at the time, perhaps, were assented to as right.

But notwithstanding, doubtless, they kept their old road. But indeed a weak argument will keep a man in his old beaten path, when a strong one cannot turn him out of it. It requires too strong resolutions to begin any new enterprize, namely, in him who gives the advice, and in him who is to take it.

For the giver, though he be ever so fully convinced, both by reason and trial in the goodness of the advice he gives, yet he dare not press it home, lest it should be badly executed, and in the end miscarry, by which the shame or blame would fall upon himself.

This makes a modest man who re-

gards his character, give his counsel sparingly, (in a tell-tale manner) and not to urge it by protestations, and oaths which some men require, before they have faith to believe, or resolution to put in practice, though ever so much to their advantage.

On the other hand, he who is to take the advice perhaps, hears it with pleasure and surprise; nay, is persuaded it is reasonable, and determines to follow it; away he goes full of the change. But this volatile spirit soon evaporates, when he meets with his neighbour, John Old-road; methinks I hear the dialogue between them, viz.

Well, Harry Froth, says John Old-road, which way have you been? Been, says Harry, I have been hearing wonders! What a pack of fools we are, to go on in our old stupid ways, and can hardly live and pay our rents; yonder's neighbour New-invention, tells me, that a fortune might be made by a new scheme, and would advise me to follow it; I think

it very reasonable, and will have a trial.

John Old-road scratches his head, and tells Harry, that new schemes will not do in this country; for (says he) I have lived these fifty years, and my father before me, and if there had been any better methods, they would have been found out before now; for my part, I will not be driven out of my road, to be laughed at, (if I should miscarry) for any one's whim.

This last part of John Old-road's advice staggers Harry Froth's resolution, and his airy spirits being evaporated, he follows his old path.

I look upon it, that a person who intends to execute any new enterprize well, ought not to be diffident in himself, but on the contrary have a bold, pushing, steady spirit.

But indeed the all-wise Being, orders every thing for the best; for, was every man of this temper, improvement would be at the height, in a little time; and

when any thing is at the height, it will inevitably decline, for nothing can stand always in one position.

But as yet we are wholly on the improving side, and have room enough to rise much higher without apprehending a fall.

Let it be one of the farmer's chief cares to keep his crops of all sorts free from water, which is very destructive both to corn and grass, for though perhaps it may not absolutely kill the plants, yet it leaves them at spring, weak, and in a starved condition, so that a good deal of the summer is spent before they recover themselves, which is sure to retard the harvest.

Neither does the evil altogether end in the perishing of the plants, for it sucks or washes the richness out of the ground, and leaves it of a poor starved hungry nature.

This shews how studious a farmer ought to be, in keeping his land dry, and free from water; and I look upon it, that

the most effectual way is to follow the method that is taken in the north of England; namely, to lay the land in broad high ridges. See remarks on that subject.

C H A P. XXI.

The Author's opinion on smutty-wheat, and from whence it proceeds, and its cure.

THOUGH many authors have warmly and learnedly handled this subject, yet I humbly conceive, they have dropped short of the real cause from whence this misfortune proceeds.

I have turned over most authors on this subject, and find several have stumbled on part of a cure, though none have hit upon the right cause; the strength of every argument is known by the reasons quoted therein; neither can any argument be good or well grounded, that will not bear sifting or trying to the bottom.

In order to open the ideas of my reader as much as possible, I shall give mine, as follows.

In 1764, a paragraph appeared in the Dublin Journal, of a farmer in England,

that sowed a field with wheat, one half of which was marled, and the other dunged; the dunged part was smutty, but that which was marled, was not. The said paragraph also desired an answer for the reason thereof, which was not answered. Indeed I wrote one, and sent it to a printer, but it was lost in manuscript. A similar case once happened to myself.

I sowed a field with wheat, the seed of which I bought at a distance; I pickled it in the common way, with salt and water only; I dunged the said field as far as my dung went, the rest I limed as far as that went, but was still short of manure for two ridges, which I spread over with foot and ashes.

The consequence was, that the wheat as far as the dung reached was smutty, the rest of the field was quite clear. This naturally led me to try to find out the reason thereof, and in examining the dunged part, by pulling up the stubble, &c. I found the ground particularly

full of grubs or worms of several shapes and sorts. I make no doubt but these were the offspring of the usual inhabitants of dunghills, such as flies or insects of divers sorts which drop their eggs therein, and by the heat, fermentation, and putrefaction of the dung, these vermin are brought to life, and mischief.

The nicest observations I can make, and concurring circumstances I shall quote, leave me no room to doubt, but smut proceeds from a worm or grub; and if it be not the red or cut worm, it is of that nature. I have taken a small grub of that likeness, out of a root of smuty wheat, and have very often found rusty cankered traces of worms, in the roots of corn.

About the last of May and beginning of June, wheat is shooting into ear, and the ear is no sooner out of the stem or straw, but the skin of the grain is formed and filled with a soft pulpy milky substance.

At this crisis, the worm or grub, seizes

upon the root of the plant, and feeds upon the fine particles or juices thereof, which ought to ascend to nourish, or feed the grain. And though so small a worm may not take in all the juices belonging to an ear of wheat; yet by making an orifice to feed out of, it wounds the plant, and gives vent to the sap; so that it bleeds (as it were) itself to death. This is easy to be conceived in a similar case, viz.

Make a gimlet-hole in a birch tree in spring, when the juices are all a-float, we shall find, that tree will bleed itself to death, if not stopped in time. The housewives in England spoil a great deal of this sort of timber, by tapping them thus to make their birch wine.

A root of corn (by branching or stooling) may produce thirty or forty stalks or ears, and each ear takes in its nourishment from the main root, by a vein or leader purposely placed to feed thro'.

Now, if the worm or grub should seize upon said vein, and feed upon what

should supply nature, doubtless the milky substance would dry, become a black powder, or dead substance as it is; nay, in short, I believe it very possible for one grain in the middle of an ear to be smutty, (by the same rule) and the rest not hurt; but I believe it impossible to account for this in any other way, than by a worm or some such insect, seizing the vein peculiar, or belonging to each grain.

I look upon it that there are three stages or periods in which corn may be spoiled by these vermin, viz.

First, when they prey upon it, after it is in ear, but before the grain is formed. When it is caught in this state, all the ear or chaff strips or falls off, and leaves standing a naked stalk; this we have seen often happen.

Secondly, (as above observed,) when the skin or bran-part of the grain is formed and tough enough to hold the soft milky substance, before it is formed into a solid body, then the vein is wounded, and nature stopped from fulfilling her of-

fice; therefore, what was already in the skin, for want of farther supply, dries and becomes a black, light, and lifeless powder, much like lamp-black; but as the skin or bran is tough, it is confined therein like, or in the form of a ball, and when it comes under the flail, it is burst and let at liberty, like dust among the corn, and hangs at the downy end thereof, so that when it comes to be ground, the flour and bread is made black, and disagreeable to the eye, but indeed not to the taste, as the palate cannot perceive any disagreeable taste it has: and, if the wheat could be threshed or got out without bursting these balls, it would not be of much ill consequence, as the balls are so light, that they might be easily separated from the heavy corn by several methods, therefore it is best for a farmer not to thresh but lash such corn, and winnow the seed, with as little mixture or treading on as possible. Another good way is to lease or pick the smut out before it is threshed, but it must be a nice discerning

eye that does this, as some ears of smut are much like the good corn, and if one ear or two be left in a sheaf, it will spoil the colour of the bread.

The third stage in which it is seized, or obstructed in its feeding or filling, is when the grain is about half ripe; then the worm seizes it, and being deprived of farther nourishment, it dries and shrivels up to a small wisened flinty grain, and though it is small, yet by its firm texture, one might expect it to produce a little meal; but upon inspection it is found to be almost as hard as a flint, and of no use. This is called by some of the English farmers, flints, and by others trucks.

The above considerations are more than a probability, that a worm is the cause of smut, yet I hope what is to follow will make it appear much stronger in its favour: I say I hope, because if we be acquainted with the disease, the cure is more certain.

It is allowed by most writers on this subject, that pickling wheat will prevent

smut: this I readily admit, but however believe, that some pickles commonly made use of, will scarcely prevent it; and as firmly believe some others to be effectual.

But give me leave to ask such authors, how they propose these pickles to operate? Do these authors, who believe that smut comes by a blast, imagine that pickle could prevent the wind from having any power over the plant? And was it not a very partial pickle or wind that would not prevent all the English farmer's field from being smutty as well as that part which was marled; likewise mine and several others which have had the like trials, and met with the like impartial winds? &c.

Again, does the author who places the reason of smut to the account of not changing the seed, believe that if the pickle had power to prevent the seed, bought three or four miles off, from being smutty, that it should not have the same power over seed grown in his own

land? Or does such an author really think, that it is any more possible for smut to grow or taint any other corn than lamp-black; seeing it is as utterly divested of every vegetating quality?

I have sown very smutty wheat, variously prepared, both with, and without pickling, but never saw that it was attended with any bad consequences arising from smut; and if I liked the seed, otherways I should never be deterred from sowing it, as it is clear to me, smut is not the occasion of smut, it being as possible for a bit of dry powder, out of a rotten stick to grow, or taint others as smut.

But now again, if we turn our eyes on the worms, we shall find it as clear as the noon-day, where the pickles operate to prevent them from feeding upon, or wounding the plant as above; we shall also find, that the more nauseous or poisonous the pickle is made, the more likely it is to be effectual in its purpose.

Wheat being put into a tub of pickle,

the skin or bran is the first that imbibes the liquor, and the thick glutinous part thereof sticks, clings, or gathers to the skin, and when the lime comes to be added, it incloses, coats, or candies the grain, by which there remains a kind of a crust, which retains its nauseous quality for a long time.

Now we are to consider, that the skin or bran never grows or leaves the ground, but remains incircled with the root, which grows and spreads round it: this is a plain truth, which may be immediately proved by pulling up a root of stubble, and upon examination it will be found, that the husk is quite uniform, and nearly resembling a blown egg, having a hole at each end, one to let out the root, and the other the top; and, though the grain be buried deep, yet it will rise to, or near the surface, and generally stands perpendicular.

The inside or floury part of the wheat, being all fled, changed or grown into root and branch, we might expect, that

as the bran is left a dead lifeless body, it would putrify, rot, and fall to dust; but, on the contrary, it will (if the stubble be not trod or molested) preserve its perfect shape for several years; this is easy accounted for, as it is the pickle which preserves it, and the stronger the pickle, the longer it will maintain its strength, both of smell, taste, and texture, which stinking quality is susceptible to these delicate, diminutive creatures, whose sense of smell is the main guide they are possessed of, to conduct them to their food; and I apprehend it would be impossible for one of these worms to live in, and feed upon a root of wheat that contains this stinking pickled bran or husk.

If a farmer do not dung his land, but enrich it by often plowing, as hinted in Chap. XIX. it is a very great chance if he will have a grain of smut in his wheat.

This is also easy accounted for, and makes good my opinion of worms being the cause thereof.

A farmer of my acquaintance had a field that was always subject to smut. I examined the land, and found it had been much dunged, was very rich, and croud-ed with many sorts of worms. At this time I was not acquainted with the pickle that will prevent it; and he had used the salt and water pickles to little purpose.

I therefore advised him to plow his field every month in the year, when under fallow: which when he did, he soon cleared it of vermin. The crows, and birds of all sorts follow the plow, and pick up every insect they can find. Again, the plow coming so often in a place disturbs and breaks up their nests or dens, so that they are prevented from breeding, and the old ones being exposed to the fowls of the air, their race is soon extinct.

This may plainly appear to be the case and cure for red or cut worms, so pernicious to green corn and grafs.

It is well known to most farmers, that red worms are most predominant in fresh or new land, (that is) such as has lately

been plowed out of grafs; but upon old going-land they are feldom found, or at l aft, fo thin as not to do much mischief. And how can this be accounted for, otherwife, than that, as long as the land lieth in grafs, the worms can breed and feed unmolefted; but when difturbed, they meet with the above confequences.

This again fhews the value of tillage, and how affiduous and active every one ought to be to promote it.

I hope the above reasons are fufficient to fhew, that worms are the caufe of smut, and that fallow, and proper pickle, will prevent it. (See pickle.)

C H A P. XXII.

General directions for plowing, sowing, harrowing, and mowing, or harvesting Barley.

IN October begin to plow your land for winter fallow which is intended for barley, except turnip-land, and this must be plowed as soon as the turnips are eaten off.

Observe to gather or raise your ridges high, in the middle of your winter-fallow, by which it will keep itself dry, so that it may be plowed any time in winter, and the oftener it is plowed, the better and richer it is made: take care that your land be got into sowing order by the first of March, as the best season for sowing barley, is from that to the middle of April, though some will sow 'till the middle of May; but a good deal may be owing to the season, for it is better to wait a month, than to sow in a dirty, cold, bad season, as barley is a grain, a-

bove all others, that will not bear inclemency or hardship.

If you intend to lay your land down with any sort of small grafs-seeds, such as clover, lucerne, &c. As soon as the barley is sown and harrowed, as above, then sow your grafs-seeds, and harrow it once in a place, with the harrow turned the wrong end foremost, that the pins do not sink too deep, which would bury a great deal of these small seeds; but larger sorts of grafs-feed, such as faintfoine, burnet, and the like, may be sown, when the land is about half harrowed for barley, and then harrowed along with it, by which they will be the better covered; and, being a husky feed, they require it. When the barley has been sown about a month, roll it.

Sow your barley immediately after the last plowing, and harrow it well. Six stone of seed is sufficient for an English acre.

One great article, on which the farmer's success depends, is in keeping his crop clean; he must therefore take care it be

well weeded, and throw the weeds into the furrows; being thus cleared from weeds, the business is over, till ready for harvesting.

As most persons know when it is ripe, I shall only say, that the chief token is to observe the joints of the straw; when these turn from a green to a dry straw colour, it is ready for cutting; but no corn is ripe, as long as the joints are full of sap, for those are the juices which supply or feed the grain with its last nourishment, as it keeps feeding or filling, until the joints are sucked dry, and then the green cast departs along with the sap, and nature has done its work; therefore fall to and mow it as directed in the next chapter.

C H A P. XXIII.

On mowing and harvesting Spring-Corn.

WHAT may be properly called spring-corn, is that which is sown in spring; such as barley, oats, beans, peas, buck-wheat and the like.

These are all, what the English farmers call mowing crops, which is done by a cradle on the scythe; or, for want of this, a hoop made of a strong briar, fallow, or the like; the root end of which is fastened in a hole, made by a spike-gimblet, in the shaft, about eighteen inches from the heel of the scythe, and the top end of the stick must be brought with a bend over the heel of the scythe. The hoop must be crossed several times with a cord like net-work, in order to keep the corn from falling through. Upon trial, experience will teach him farther.

The mower being thus equipped, let him begin to mow, leaving the standing corn

on his left-hand, that is to say, he must leave the swarth leaning against the standing corn; and if he is a dexterous workman, he may leave it so even and straight, that a cross straw will scarce be seen.

After each mower comes a gatherer, with a reaping hook or a small rake, to make it into sheaves.

The complement for every two mowers and two gatherers is one binder; sometimes when the corn is rank, or a heavy crop, the two gatherers will have a band maker between them; and these five or six persons day's work to mow, gather, and bind, is four English acres of fair standing corn, either barley, beans, blendings, or oats.

Being thus bound, it must be set up in flocks; the sheaves propping against each other, press the tops well together, in order to make them thin and sharp, which will shoot off the rain the better.

The farmers in England seldom put any covering sheaves on their barley-flocks, but leave the corn-ends exposed to

all weather, believing the corn to harden the quicker, and more kindly; however, as Ireland is a wetter climate, I would advise the farmer to cover them at night, and uncover them in the morning.

After stooking, the barley stubble must be raked with a swarth-rake, so called from the length of its head, which is six feet, to take a swarth-breadth at a time. It has one row of iron pins, each pin eight inches long out of the wood, and three inches afunder. It has a handle in proportion to the rest of the rake, in which is fixed a belt to go about the man's shoulders, to draw it in the nature of a harrow.

When he finds his rake full, he must lift it up, wherupon the corn drops out; he then goes on again, always leaving the corn in the same place or range, in the nature of a wind-row.

When the field is raked, cock the rakings like hay; and this is very useful to lay on the tops of the field-stacks, as it will lie better than sheaves, and shoot the

water off; but in England, they never stack their corn in the field, but let it stand in the stook till it is ready to take home to the barn or hag-yard. However as Ireland is a moister climate, I believe it a very good way, particularly if the corn is to be housed. And perhaps if England was to do the like, it might be the better, as it would put the corn out of danger of bad weather. See under the article of wheat for directions.

N. B. Spring corn, such as barley, oats, beans, and pease, are all harvested the same way by mowing; therefore shall refer my reader for directions on those heads to the foregoing instructions.

176 A TABLE on Barley.

*The expence and profit arising from an acre of
barley, sown after turnips.*

To eight quarters at 20s. per.	To-	l.	s.	d.
tal produce	-	-	8	0 0

To two plowings, if only with one man and two horses	-	0	5	0
---	---	---	---	---

To harrowing, sowing, rolling, and water furrowing	-	0	3	0
---	---	---	---	---

To chance of weeding	-	-	0	2 0
----------------------	---	---	---	-----

To feed	-	-	0	5 0
---------	---	---	---	-----

To mowing	-	-	0	1 0
-----------	---	---	---	-----

To gathering and binding	-	0	0	6
--------------------------	---	---	---	---

To raking, with a swarth-rake	0	0	4	
-------------------------------	---	---	---	--

To stooking, carriage home, and extraordinary attendance	-	0	4	6
---	---	---	---	---

To carriage to the market, and expences extraordinary	-	0	6	0
--	---	---	---	---

To land rent upon a par	-	0	15	0
-------------------------	---	---	----	---

Total expence	2	2	4	
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Clear profit	5	17	8	
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Note. The straw pays for the threshing.

The expence and profit arising from an acre of Barley, by proper fallow.

To eight quarters of barley, at 20s. per barrel. Total produce.	8	0	0
To ten plowings, by one man and two horses, at 2s. 6d. per	1	5	0
To sowing, harrowing and rolling	0	3	0
To seed	0	5	0
To chance of weeding	0	2	0
To mowing	0	1	0
To gathering and binding	0	0	6
To fwarth-raking	0	0	4
To stooking, carriage home, and extraordinary attendance	0	4	6
To carriage to the market, and other expences	0	6	0
To two years land rent.	1	10	0
Total expence	3	17	4
Clear profit	4	2	8

*The following is a table of expence and profit,
arising from an acre of barley, when sown
after the common husbandry.*

To 6 quarters of barley at 2 os.	l.	s.	d.
per - - - -	6	0	0
To two plowings with four horses and two men -	0	10	0
To harrowing and sowing	0	3	0
To feed - - - -	0	7	6
To weeding - - -	0	3	0
To reaping and gathering	0	6	0
To stooking, carriage home, and extraordinary attendance	0	3	0
To carriage to the market, and extraordinary expences	0	5	0
To rent - - - -	0	15	0
To lime or other manure	2	0	0
Total expence	4	12	6
Clear profit	1	7	6

C H A P. XXIV.

Remarks on the foregoing Tables.

I Have been the more particular in laying down the three foregoing tables on barley, that the farmer may at one view, see that which affords the most profit, that he may be induced to copy after it for his own and the public good. And it appears very plain from the said tables, that there is no profit equal to that which comes after turnips; and particularly when he considers how easy a crop of turnips is got, and also the profit arising therefrom, as appears by the said table.

The next to turnips in profit is that of fallow, as from it we are sure of a full clean crop; and that without any other manure than what the air and weeds produce, which indeed is the richest of all others, as may appear by what I have said on those heads.

C H A P. XXV.

On four different sorts of barley.

FIRST sprat or battle-door barley.

Second, long-ear'd barley.

Third, round-ear'd summer barley.

Fourth, round-ear'd winter, or by some in England called big; but its true name in Ireland is bere.

Were I to add a long chain of names (as is usual with some authors) it would be swelling my work into an useless chit chat, as every name that is added to those, is only explaining the same thing over again; for it is the different language, or rather gibberish of different kingdoms, or counties, which gives rise to so many names for one sort of grain. This may well confuse the ideas of a farmer who does not know how to account for all the names that are given to the same sort of grain: may not this lead him to seek under a disguised name, for

the very seed himself has growing. It is true, different land and tillage will in some degree, change the form of seed as to a thick or thin skin, a small or a large size or the like, but the species is yet the same.

The sprat, or battle-door barley, has only two rows of grain, by which reason the ear is flat; the corn is short, plump, and thin skinned, not inclined to have a long gross straw, (but indeed this varies according to the richness of the ground it is sown on;) it is said it will grow best on light sandy land, but I know it will grow well on many other sorts of land. I have had great crops on tough, strong, cold clay, or gravel-land, but such must be well pulverized, sweetened, enriched, mollified and warmed by tillage. Manures on such land, will not do for barley, without the cold, four nature of the ground be changed by tillage. The manure which ascends and descends from the clouds is of a warmer and earlier nature than any other, therefore will pro-

duce the earliest and thinnest skinned crops.

The long-ear'd barley gains its name by having a long ear, by which it may yield more corn under the flail; but the grain is small, and long, and has a thick skin; its choice as to the land and tillage is nearly to sprat-barley, but may do with something colder or stronger soil.

Round-ear'd summer barley, is an excellent good yielder; it is a middle species, between bere, or winter barley, and sprat-barley, therefore must be sown early in spring, the lands of Ireland, Scotland, and the north of England, are very suitable for it, provided they be well tilled; it has also a plumper, fuller, or bolder grain than bere, though not in this case equal to sprat-barley. It is not so delicate or tender as sprat-barley, neither is it so hardy as bere; indeed it is my choice, next to sprat-barley, for almost any sort of land which is proper for barley crops,

Bere, winter-barley, or big, is best

known in Ireland, or the north of Scotland, and indeed by their tillage it is most fit for them. I have held several arguments with Irish farmers about this grain, and I generally found the strength of their arguments to hang upon prejudiced old customs, believing as their forefathers sowed it, though in darker days of improvement, that they would not be right if they did not follow their steps; and in short, it is as hard to shake their resolution from the pursuit of this their favourite grain, as from being drunk by the whiskey or spirit it makes.

This bere is generally sown at the same time with wheat, and though flovens sometimes get good crops, perhaps chiefly from the strength of manure, (as they mostly sow it after potatoe crops, or on their rankest land, which would in fact bring onions) yet I observe those who manage better, have in general, better crops; and bring it nearer to the resemblance of barley for plumpness; but at best, it is far short of barley in value,

infomuch, that it would hardly be sold in the English markets at any price, except for hen-corn.

It is a poor long, small grain, with a thick skin; but notwithstanding this, it is not without its good qualities, where it is used in its proper place. It is to be observed, that the poor of Ireland live about eight months out of twelve on potatoes.

A potatoe garden for a poor family is generally about half an Irish acre; they keep no team, therefore cannot till the potatoe stubble fit for a crop of barley; for it is to be observed, that there is no more of the ground stirred, than what they throw out of the trenches to cover the potatoes with. The bed on which the potatoes grow, lies unmolested till the third crop, therefore when they dig the potatoes, they sow the bere, and shovel up the trenches to cover it, which is all the husbandry it gets or wants. But such husbandry would not do for barley, therefore in this case, it may have the preference.

C H A P. XXVI.

On different sorts of land for Barley.

BY the dint of plowing, good husbandry, and rotation of crops, almost any sort of land may be brought to grow barley; however some is better or more suitable for this crop than others, therefore I shall begin with the best first, and go regular on to the worst, which shall be placed last, viz.

First, loamy sand,

Second, loamy gravel,

Third, chalkey land,

Fourth, sandy land.

The above four sorts, by nature will produce a long ear, and short straw, a plump, stout grain, and thin skin, which is certainly of the best quality.

Fifth, loamy, gravelly land, that lies over lime-stone.

Sixth, warpy land,

Seventh, black hable earth,

Eighth, strong clay land,

Ninth, black mountain land,

Tenth, black, deep moory bottom land.

The last six sorts of land, generally produce a long straw, and a small ear, a long small grain, and thick skin, but may be helped greatly by tillage, sowing thin, and particularly if it follow turnips, as they in all cases are an excellent preparative for this crop, and deserve to be made a more general choice of.

C H A P. XXVII.

On the management of Rye, both for winter-feeding, and a seed crop.

THE management of rye is very simple and easy, which few words will explain.

A farmer having stubble-land, particularly if of a warm sandy nature, and would wish to have it under profit the winter half-year; let him plow it as soon as the corn is reaped, begin in the middle of the ridge, and gather or take it up, that it may lie very high, and dry; this done, sow two bushels of rye on an English acre; harrow it in, and by being thus early sown, the Michaelmas spring will push it up so forward, that it will be mid-leg deep by December; but though it may be a full eatable crop by this time, yet the best way is not to turn cattle upon it till spring, then other herbage being scarce, will make this more valuable.

You must eat it off time enough, to sow such a spring crop as you intend, but barley is the most suitable, as it will bear to be latest sown, therefore will give the rye more time to be eat off.

If you would have your rye to stand for seed, there are two seasons for sowing it, namely, at Michaelmas and February. The large winter rye must be sown at Michaelmas, and the small spring rye in February. Six pecks of seed are enough for an acre. You must cover it with the harrow.

This spring rye is sometimes made use of amongst the English farmers (if a crop of wheat should miss) to sow in its place.

In spring, roll your rye, (which you intend to stand for seed) if too forward, eat it with sheep, or calves, in the beginning of May.

As the farmer's success partly depends in keeping his crop clear of weeds, this as in others must engage his attention. As to reaping or harvesting rye, it is done

in the same way as wheat. Grass seeds may be sown among rye, before it is rolled in spring, and will answer as well, as if sown amongst wheat: a crop of rye is about the same value as a crop of oats, but it is a greater impoverisher of land.

The land most proper for rye, is that of a dry, open, loose, weak, sandy, or moory nature; and though strong land, of a good sort, will grow rye, yet other crops may be adapted for such land, which is more profitable.

C H A P. XXVIII.

Remarks and illustrations on Rye.

RYE formerly was greatly esteemed in the light sandy countries of England, as the farmers thought such land would bring nothing else, but since the new husbandry of turnips and clover has made its way into the world, it is found that they change the nature of the land, and consolidate it in such a manner as to prepare it for a crop of wheat, which is much more valuable than rye; however rye is still useful in its place; and particularly for that of spring-feeding, as it is of a quick growth and early spring; also a great creater of milk, which makes it particularly useful to feed early lambs on; and what still adds to its value in this case is, that the land most proper for rye is that of a dry, light, sandy nature, which, if the weather be ever so wet, the rain no sooner fills, but it sinks through, and leaves

the surface dry, therefore the lambs can feed and lye dry and warm, whereas if the ground was clay, such as would hold water on the surface, the consequence would be bad, in perishing the lambs, which would retard their feeding and growth. Also in such land they would tread and dirty the crop, so that their feet would destroy as much as their mouths.

Again, rye is the best of all other corn to sow on reclaimed bottom, bog, or mountain, (I say the best of corn) but I apprehend no corn is equal to turnips, rape or cole seed, for such reclaimed lands, but when it is propagated on such land, it must be sown very thin, as it will stool much. The consequence of sowing thick on such land would be dangerous, as it would throw up much straw, but little corn.

The great use for rye, is to mix it with wheat for bread; about two thirds wheat, and one of rye, makes well tasted bread, but black.

In this mixed state, it is called *messin*;

some sow wheat and rye mixed, which is called messin: but I do not like this method, neither do I see any meaning in it; for in the first place, they do not ripen kindly together; besides if the land will bring one ear of wheat, by the same rule it may bring two or more, and certainly wheat is a much more desirable crop, if it can be got on the same land.

Notwithstanding, rye is still useful (as before observed) in sandy countries, and for reclaiming bog with, where the farmer is obstinately bent against turnips and clover; rye makes good malt for the distillers, it being of a particular sweet taste or nature, therefore produces a great deal of spirit.

Again, a farmer may make use of rye with success, to bring his sows in season for the boar, it having a surprizing effect that way; so that they tell you, one peck of rye will make a sow take the boar, be she ever so poor, or soon after pigging; others say that it will have the same effect on cows or ewes. As to the truth of this I

cannot say, but I have tried it on the sown more than once.

Note, there are only two sorts of rye worth the farmer's notice, namely, small and big, and by others called winter and summer rye: the winter rye is a large full grain; but the summer rye is a small grain, and is generally sown in spring, and will be in as early at harvest, as that sown at Michaelmas. The winter rye is sown to stand the winter, is a hardy kind, and will answer either to stand for feed, or to be sown, and eaten, for winter feeding. Rye straw is very good thatch or litter, but bad fodder for cattle.

C H A P. XXIX.

*Directions for plowing, sowing, and harvesting
Oats.*

OATS are a grain that will grow almost on any kind of land, or with any kind of husbandry; but though sometimes tolerable crops are got by slovens, yet those who manage better may be sure of a larger return; and this is, or may be got, chiefly by tillage, and letting proper crops come in their right course of succession, by which means the one crop is an useful preparative to another.

If stubble of any sort be intended for oats, it is the better to be plowed as soon as the grass is eaten off, which is generally about November, and then it being turned under, and the roots of the grass or weeds exposed to the frost, and the inclemency of the weather, they are killed, and instead of a nuisance, are rendered a great improvement.

Many farmers make a practice of sowing oats upon lay; that is, in or about February, they plow up the lay, and then sow the oats and harrow them in; this may answer where the land is good, and of a tender sod, not given to a coarse grass, or rushes; but however, in general, I do not approve of it, as I look upon fallowing out of the sod to be the most capital management in nature, for the reasons I have mentioned in the proper place.

The land must be plowed, and the seed sown in February, or from thence, till the latter end of March.

I look upon three bushels of oats to be a sufficient quantity for any kind of land; for, though it is a grain that does not stool, or branch so much as barley or wheat, yet it corns in proportion to the nourishment it finds in the ground.

When the oats are about three weeks or a month in the ground, sow any grass seeds you intend, and roll them in, as it will cover the seed, level the ground, and help the oats at the same time.

The oats must be weeded about the middle of June; then any farther business is over until harvest, for which, observe the directions under the head of mowing corn; they must be mown and harvested the same way.

Without doubt, by mowing, there is more fodder, and consequently more manure, besides all the hands it saves, which is a valuable consideration, at this busy season of the year; moreover, it should be the farmer's chief study, to work his lands with as little expence and labour as possible; and yet not to be so penurious as to stint his land of its proper due.

There is a medium to be used in all things, and also much to be said in favour of genius and contrivance, particularly, in farming matters, as it is of all occupations the most general benefit to mankind.

C H A P. XXX.

The explanation of five different sorts of Oats.

OATS, like most other grains, have got a multiplicity of names, to explain one and the same thing; but this (as observed in barley) is owing to a different dialect or confusion of tongues, peculiar to each country or kingdom; in fact I imagine there is none more proper for the climates and lands of Ireland and England, than those five sorts, viz.

First, the single English white oat,

Second, the Poland oat,

Third, the Scotch black oat,

Fourth, the naked oat,

Fifth, the red oat.

If there be any others that vary from these, it is not because they are different sorts or species, but because they have been altered in either colour or size, by the nature of the ground or climate sown in.

However, there is a particular choice to be made in all sorts of oats, which is very material for the farmer to know, in order to heighten his success in this crop.

It is to be observed, that in most oats, there are some which grow in couples, (that is) a large and a small one together, but in some a great deal more than others. The farmers who know the bad consequence of these double oats, are very careful in choosing their feed, to be all (if possible) of the single oat: and indeed they have just grounds for this nicety; as a barrel of single oats will weigh more by about two stone, than a barrel of the double sort; and every one will allow that it is the weight that distinguishes the goodness or badness of any corn.

The oat grows double from three causes. First, by being sown too often on one sort of land without changing. Secondly, by being sown too thick on the ground. Thirdly, by the ground being too rank. When oats have once got into the double

straw, they ought to be sown no more, as it is hard to bring them back to the single oat again; though this may be done by sowing very thin on good strong land, and tilling well to prevent weeds from smothering the oat, and drawing them up weak.

I look upon the English single white oat, to be the best of all others, for the climate and lands of England or Ireland, as it is a good yielder, both in corn and meal, and ripens even, which is a very material point in this crop, it being so subject to shed, or shake its seed.

The next in value, particularly for the wet, or cold lands of Ireland, or the north of England, is the black Scotch oat; this yields well, both in corn and meal, and is early ripe, therefore may be sown later, (if a cold wet spring) by three weeks, than any other sort; the meal also has a peculiar rich, sweet taste.

The Poland oat, is a fine, short, plump grain; the straw short and fine, but it will not turn out near so much corn on

an acre, as the two former. Again, it is very subject to shed, with the least wind, the top and best of the corn, when that on the bottom branches is green, particularly, if the land be cold and wet; but indeed on warm, gravelly, or sandy land, it ripens more even, therefore a farmer has a better chance to catch his crop before it sheds; but this oat must be cut, while the chaff or husk, on the lower branches is greenish; for if they be let to stand, till they turn as white as the top branches, half of the crop will be lost in harvesting.

The naked oat is a small grain; it is called naked because it has no bran upon it like other grain, but grows in the same state as the kernel of the common oat when shelled; therefore is a ready grain for bread, as when it is threshed, there is no more to do to bring it to meal, than grind it, and then it is all meal and no bran; it is a sweet meal, and consequently makes good bread.

When it is sown on land proper for it,

it will produce as good or profitable a crop as other oats; for though the bulk will be wanting, the meal is there; and if it be a good crop, the grain may be as large as the kernil of common oats when shilled.

The straw is short and fine, therefore good fodder for cattle. This oat does not stool or branch much, therefore must be sown pretty thick on the ground; two bushels will do this, as the grain is small.

They must not be sown under furrow, but harrowed in, as their small weak nature would not be able to work through a thick furrow.

The land for this crop must be finely tilled; and as all land after plowing has an uneven surface, it is necessary before this grain is sown, to harrow it once in a place to level it, to prevent the seed falling too deep, and also make it spread even and go farther; after the grain is sown harrow it fine.

Delay sowing grass feeds till the first of May, that the oats may get a-head, or

they will be smothered, being a small plant. The season for sowing the oats is about the first of April.

The red oat takes its name from the colour it bears, though in fact, it is not absolutely red; therefore I think, it is wrong applied; the colour is of a sandy cast, much like oats that have been heated in the stack.

It is a heavy thin skinned oat, therefore yields well in meal, and will nearly produce as much on an acre as the English white oat, however it requires a rich, warm, well-tilled soil. I have heard gentlemen say, they have had greater produce from this than any other crop; but as that was not my case, I cannot speak from experience in this particular.

*The expence and profit, arising from an acre of
oats, English measure, at $5\frac{1}{2}$ yards to the
perch.*

To seven quarters of oats, at 18s.	l.	s.	d.
per - - - - -	6	6	0

To plowing twice, with one man and two horses - - - - -	0	5	0
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To harrowing, sowing, rolling, and water-furrowing - - - - -	0	2	0
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To chance of weeding - - - - -	0	2	0
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To feed - - - - -	0	9	0
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To mowing - - - - -	0	1	0
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To gathering and binding - - - - -	0	1	0
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To swarth-raking - - - - -	0	0	4
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To stooking, carriage home, and attendance - - - - -	0	2	0
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To carriage to the market, and expences - - - - -	0	6	0
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To land rent - - - - -	0	15	0
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Total expence	2	3	4
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Total profit	4	2	8
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C H A P. XXXI.

The management of Beans.

STUBBLE land is what is generally used for this crop, if you intend to raise it to the best advantage. Plow your land as soon as the crop of corn is off; and the first of February, if the weather permits, plow again; then sow your beans, if you sow blendings, mix two beans for one pea: when sown, harrow them in, but do not harrow the land too fine; if the beans or peas be not all covered, those that lye upon the ground will grow, and be the forwardest, and as good, if not the best plants.

This may seem odd to those that do not understand it, but however, it is positively fact, which I have often experienced; and may appear to a nice inspector thereof.

It is well known that the seed of this grain rises upon the top of the plant, and

if they be covered too deep, it is hard for the seed to make its way thro' the earth; whereas, the seed that lies on the surface, has not that labour to go through, but the damp of the earth, (if there be no rain) attracts the seed, and makes it strike its root downwards, in a very little time. As often as I have noticed this, I do not remember I ever saw a pea, or bean lost, by lying upon the earth, that did not grow; indeed the fowls of the air, is a consideration that ought to be guarded against, as there is a greater danger to be feared from them, than from not growing.

Some farmers plow their beans under, but the above shews they would do better harrowed in. I have known several crops of beans to rot in the ground, in a wet season, when they have been buried too deep, so that they could not make their way out of their cold situation before they perished; but this can never be the case by lying on the surface.

I wonder the farmers do not open their eyes to these plain facts, since it is as clear

as the fun, that they throw a great deal of feed, and labour away: how often have I seen this done, by what they call dibbling; when they practice this, they go with a stick, and make a hole beside a bean, and let it drop in, and thus they serve all beans that have missed covering with the harrow. Whereas, if they would send one boy to keep off the birds, four or five days, they would prevent all that expence and trouble, except a very dry time ensued.

When the seed is sown and harrowed, water-furrow, gripe and drain your land, to keep it dry. Beans must not be rolled like other grain, as that would break and spoil them, being of a frem tender nature.

I must remind the farmer not to forget to weed them; and then all further trouble is over till harvest. Beans are ripe for reaping, when the pods are turned black about half way up the stalk, but the top pods and upper part of the stalk, will be green. They are harvested the

same way as spring-corn, except, (instead of swarth-raking,) what drops from the scythe must be picked or gleaned up, by a parcel of women or children.

C H A P. XXXII.

Explanation of the Field-Bean.

THERE is one sort of bean particularly worth the farmer's notice, and that is the small, round, black field-bean, by some called the magazine bean; it is nearly black, and has not a dint or flat place about it, except at the thick end where the eye is; most beans have two flat sides, but this is plump, full and round. It is a good bearer, and the straw is small, and excellent feeding for horses.

The next to this in value is, a grey bean, of a larger sort than the former; this is called by some, battle-door field-bean, by others large field-bean. It is shaped not much unlike a battle-door, or in the Irish phrase, a beetle; this requires richer land than the former magazine bean, so consequently is not so good fodder, because the straw is very gross, neither is it so early ripe, but it is a good yielder, and, ex-

cept the former sort, is the best bean a farmer can sow in the field.

The Irish farmers are almost quite strangers to the magazine bean, and as to the large field or battle-door bean, they sow it but in few places; they are too much attached to the culture of a garden-bean, commonly called the hot-spur bean. It is white, and the smallest sort of garden beans; it produces a strong-tasted coarse meal, and a gross stalk or straw, which a horse will not eat, neither is it a great yielder. I was once persuaded to sow some, and to look at it on the ground, was a great crop, but the produce was in the straw, and not in the corn, and the straw was of no use; this bean must also have good land to grow on. In short, I believe it unnatural and unprofitable to be cultivated in the field as a horse-bean. As to the different sorts of garden-beans, I shall refer my reader to books of gardening, as this work is intended for the farmers guide, and not the gardeners.

C H A P. XXXIII.

The most suitable land for Beans.

I Have hinted in my remarks on beans, that almost any land, by proper management, particularly after turnips and clover, may be made to bring beans. But, as much as may be said for genius, forecast, or management, yet some lands are a great deal more suitable for this crop than others, which I shall point out as follows, beginning at the best first.

First, deep, strong loam-land,

Second, strong blue clay land,

Third, strong clay gravel land,

Fourth, warp land,

Fifth, black halle earth.

The above five sorts may be sown with success, with clear beans, if the farmer chuse it, but if he would sow peas among them, they must be sown very sparingly, as the land will run them into straw, so

that they will get the better of the beans, and weigh them down, and hinder them from coming well. But the three following sorts of land, being of a lighter nature, must be mixed with peas: proportion two beans for one pea, or the success will be doubtful.

Sixth, loamy sand land,

Seventh, red fox sand land,

Eight, gravelly mountain, mixed with black moory earth.

The three last sorts of land, are proper for peas alone; but beans are proper, and even necessary to be sown among them, by the way of roding; and if the beans were not to bear a single grain, they would add to the peas bearing, at least, one third more, and keep the straw from the ground, sweet and clean: whereas, when the pea lieth on the ground, the root end is kept always wet, and will be black and rotten almost, while the top is green, or perhaps in blossom.

Note, I mention the last paragraph on

peas, purposely to save the labour of explaining them in a chapter by themselves, as there can be little more that is material said on the land proper for them.

C H A P. XXXIV.

Remarks and illustrations on Beans and Peas.

THIS is a crop that deserves the husbandman's attention as much in its place as most others. Experienced farmers taste the sweets in the profit arising therefrom, which makes them so attentive thereto; with them they are one of the principal crops, having a succession every year, except in some very light sandy countries; in such they substitute peas in their place, or perhaps sow blendings, that is, beans and peas mixed.

All over England the value of beans is well known to every traveller, being as frequently called for as oats to refresh the wearied horse with; the due proportion for a feed, is to mix half a peck of oats, and a quarter of a peck of beans together; indeed some will feed with half and half, others with all beans; however I believe half beans, and half oats is the

best feed. They are also made great use of, to feed bullocks, or milch cows; to the former, they are a great fatner, and to the latter, a creater of milk; when they are used for these purposes, they are splet, that is, half ground, and mixed with bran, or oats, but then the oats must be bruised in the mill also.

It is to be observed, that corn of any sort, given to horned cattle, if not bruised in a mill, will pass through them whole, and therefore be of little use, as they cannot chew like the horse-kind, but swallow them whole; this makes it absolutely necessary to have them ground.

The next great use in beans or peas, is for feeding hogs, as they give a firmer texture, and finer flavour to the flesh than any other feeding whatever. Also, the straw and pulse of the common horse, or field-bean or pea, is very good fodder for the horses.

In short, they are so valuable a crop for farmers, and so useful to mankind in general, that it is very astonishing, the I-

rish and Scots should should be so blind to their own interest, as not to sow them more than they do, particularly as the lands through the whole kingdoms are extremely fit for them.

Many an argument I have had with gentlemen, and farmers, in most parts of these kingdoms, particularly in Ireland, in favour of this crop; and it is amazing to hear the weak objections made use of to fright themselves (as I may express it) from sowing this valuable pulse.

Some would not sow them, because they thought their horses would not eat them: others were apprehensive they would blind their horses: a third believed they would give their horses the gripes: a fourth, imagined the straw of no use: a fifth, liked the crop, but was afraid to sow it, as the poor people would steal it, &c. &c.

The former objections are answered as above, where I have explained their value, to which I call any experienced farmer to witness: and here I farther add, I

do not know them to have one disagreeable property whatever (when dry) in the use they are for. As to the last objection, of the poor stealing them; this might be removed in a great measure, by making them more general: for the more there would be sown in a neighbourhood, the less, a few taken thus, would be missed; besides it is not above a month or six weeks, (which is from being full to taking home) that they lie under the mercy of pilfering; and would it not be well worth a farmer's while, to watch them in the day time, and in the dark night they could do little hurt. Another advantage is, that their blossom affords a plentiful food in a country for bees to lay in their winter stock from.

I have likewise heard Irish farmers say, that beans is a great impoverisher of land; but here again I imagine they are mistaken, for I believe them to do less hurt to ground than any other corn, except peas. It is a proverb amongst good farmers, that though the land be poor,

if they can get a good crop of beans or blendings, they are sure of a good crop of wheat on the same land the year following.

But let me further remark, that I do not think either beans or peas, sown each by themselves, will afford so much profit to the farmer as when sown mixed. I know by this assertion, that I shall draw the censure of some of the English farmers upon me; such as are very careful to keep the beans clear from peas; however no argument is so good as when supported by strong reasons. Another thing is, I shall have about three fourths of all the farmers in England on my side, who at present practise sowing blendings, though their land may be strong clay, and no doubt, they will find their advantage in so doing.

The due proportion for any land, (except it be a very light blowing sand) is two beans for one pea; by which means, they will be (without doubt) a standing crop, as the beans will be, (as it were) a

roding for the péas; in this case they are assistants to each other; for as the peas are kept standing, and form (as it were) an arch over the top of the bean, the circulating air is admitted round them to assist in feeding the corning part thereof. The beans, when sown alone, admit of grafs or weeds to grow among them; and these encroachers take on, or impoverish land worse than the beans themselves; but the peas being substituted in the place of the weeds, by such oeconomy, the land is burdened with nothing but what will enrich both herself and her master.

It is past contradiction, that a crop of blendings (be the land what sort it will, except a blowing light sand, or black bog, which last is not fit for either,) will produce considerably more corn, than if each was sown separate. In England, farmers have a very good opportunity to try experience in their common town-fields; but as an explanation thereon may not be disagreeable, read it in the next chapter.

A Table of expence and profit arising from an Irish acre of beans and peas being sown together, is called blendings; the proportion of mixing for sowing, is two beans for one pea; and in this state, they will produce more corn to the bushel, by about one fourth, than if each was sown separate.

To 48 bushels of blendings at	l.	s.	d.
3s. per, total produce	7	4	0

To two plowings with one man and two horses	-	0	5	0
To sowing and harrowing		0	2	0
To chance of weeding		0	2	0
To seed	-	0	6	0
To mowing, gathering, and binding	-	0	3	0
To gleaning	-	0	1	0
To stooking, carriage, and ex- traordinary attendance		0	3	0
The straw pays for threshing		0	0	0

	1	2	0
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220 Table on Beans and Peas.

Brought over	1	2	0
To land-rent - -	0	15	0
To carriage and market expenses - - -	0	5	0
Total expence	2	2	0
Clear profit	5	2	0

C H A P. XXXV.

A word of advice humbly offered to the Legislature of the misfortune of inclosing town-fields, &c.

A Town-field consists of several hundred acres, perhaps without hedges, ditches, or other fences, to divide one man's land from another, tho' a hundred farmers may have land in the said field, yet none will have perhaps above one, two or three ridges lying together in one place, but alternately mixed or interspersed thro' the field, insomuch, that a farmer (in many places) has no way to know his own ridges, but by cutting the first letter of his name, or some figure, in a bit of grass at the end of his ridge, and in order that one shall not incroach or steal from another with the plough, they measure the breadth, as every man's ridge is of the same size, or width, whether they be rood, half acre, or acre ridges, they being ge-

nerally laid down with some proportion of measurement.

The reason they are thus laid out and intermingled, in small parcels, was that each person should have his chance of good or bad land, as it might vary in one of those large fields, therefore an equality was very necessary in dividing the lands of England when it was first peopled, and happy it has been for her inhabitants that it has continued so long.

Most towns have five of these fields, of which one will be fallow, another wheat, another barley, another beans, or peas, and another oats. Every year the farmers take care, never to sow one sort of grain twice together on the same field, but keep alternately changing, so that one is a preparative for another, and each field gets its regular fallow every five years, and thus they are kept in tillage, from generation to generation.

Each farmer is obliged to concur with his neighbour, in this regular course of tillage, particularly in the fallow and win-

ter crop, as the fallow field is common for the cattle all the fallow year; on which a great many sheep are kept, that, I may say, weed the fallows, for they pick up scutch grafs and other wild roots every time it is plowed. Likewise the wheat field is fenced in at Michaelmas: whereas the fields that are to be sown with spring corn, may be kept open till April.

A farmer may substitute in the place of any crop, one of his own chusing, provided it stand on the ground no longer than his neighbours, as they keep a regular time of laying their fields common to the cattle, and fencing them in when each crop is sown.

There are some towns, that may have only three or four of these fields; if this be the case, they fallow the oftener, and are confined to fewer sorts of crops: but of late years, they have found a good method of sowing turnips in the fallow year; in this case they begin to plow the stubble under, as soon as harvest is in, and keep plowing for a winter fallow, till

midsummer following; then sow turnips, and eat them off by April; then sow barley, after barley beans or peas, after these, wheat, after wheat oats, and again begin with turnips; thus they get a valuable crop, and fallow the same year. This is a great improvement in husbandry, to such towns that have adapted it, but I find this is far from being so general as it ought, in England.

My Irish, and indeed some of my English readers, may think it a sort of a hardship for these farmers to have such small parcels of land, thus intermixed, and not at liberty, (altogether) to occupy or inclose them as they please: nay, in short some of the farmers who hold the said field lands, are so much dissatisfied with their lot, that they have applied, and obtained acts of parliament, to inclose their said fields, (which will in the end, have a bad effect.) For I see this quite in another light, and should consider it, rather as a misfortune, were all the town-fields in England inclosed; for if we consider tillage in

its most truly deserved light, we shall find them in the countries where it most flourishes, to be the most rich, happy, and independent people.

In short, a corn-country gives bread for people of all denominations around it, and work and bread enough for all the poor within it; it is from these open field countries in England where most of the corn is raised, that supplies London and other great and foreign markets.

But were those fields inclosed, instead of corn, the land would be engrossed by rich farmers, and turned into grass; then consequently corn would be scarce and dear, and the poor would want both bread and work. I know this to be already the consequence where some fields have been inclosed of late years.

If the said lands be kept for tillage, it is plain they are in a better state than if inclosed in small fields, as corn never grows better than in an open exposure, not to speak of the loss of ground taken up in the ditches, &c. But while the land is kept

in the open town-fields, the farmers are obliged to keep them in a regular course or succession of tillage.

Again, let me remark, that these open town-fields to be a great spur to improvement in husbandry.

How often have I heard farmers make their remarks in passing the ends of, perhaps, two or three hundred ridges of corn belonging to as many people, and say, John Such-a one's corn is good, he has a good ploughman, and has managed well; when perhaps the next ridge belongs to a worse manager, therefore immediately censures him thus: Thomas has managed bad, his ploughman is bad, or he has not sown it right, or rolled, or weeded; or wherever the fault is, it is sure to be found out and condemned by the sharp-eyed neighbours, and the owner shamed into a better manager; so that, in short, it fires every one with an emulation to out-do each other, and even extends itself to the very servants.

With what pleasure have I beheld two

or three hundred teams, plowing in a field, every one striving to shew the best work after him: how often do they make wagers (of perhaps a few quarts of ale, or the like,) which is the best ploughed ridge, their masters to be the judge.

Thus they strive to excel each other through the whole branch, as who keeps their teams in best order, and best geared, who sows best, so that the corn comes up evenest after them, who mows best by leaving the stubble even cut, &c. who makes handsomest sheaves, who makes handsomest stooks, or has the fewest sheaves blown down after a high wind, who makes the handsomest loads of corn upon a waggon; for if a load falls from the waggon before it arrives at home, the loader forfeits something at the harvest-supper; also if a driver overturns a waggon, he forfeits a goose at the harvest-supper.

They often make wagers likewise, which team will draw the largest weight, also which is the most dexterous driver.

To prove this they will lay a tenpenny nail in a turn in the road, and those that drive the waggon-wheel the truest over it is proved the best driver, and then the ricks of corn in the hag-yard are a standing witness all the winter, who is the best stacker.

Again, if a farmer (more curious than common,) introduce a strange crop on one of the ridges in this town-field, there is immediatly a jury of farmers over it, and if in the end it prove of utility, it becomes general, as their lands are all alike, not so much as a hedge or ditch to part them.

In short, I know not whether these town-fields may not inflame the spirit of improvement equal to a premium, since there may be the same ambition of excelling in one, as another, as well in the little as the great world; so that in short, I believe these town-fields are the greatest spur to improvement of any that could be invented, which every judicious observer must admit. For my part, I should think

it a blessing to Ireland, if all or most of the land in it were divided in these town-fields, as it would certainly put a stop to those monopolizers of land. What a pity it is that some method is not found out to prevent so growing an evil! indeed this year has been fatal amongst some of the great graziers, for there have six died: one of said graziers held at his death, as I am creditably informed, upwards of 12000 acres; most of it is since set from 20s. to 25s. per acre: and the other five was computed to hold from 25 to 30000 acres, worth at least as many pounds or guineas.

It was in this country where the White-boys have been so outrageously daring and mischievous of late years, and indeed it is not much to be wondered at, for these ingrossers of land are pining them out of the country.

I know the country very well, and am acquainted with all or most of the graziers in it, and from discourses I have had with them, found that they were all

sensible of the bad consequences attending so much land being in the hands of a few men; but no one can be blamed for doing the best he can for himself and family, since he is not transgressing the law; for, says he, such a farm is to be lett, and if I can get it worth money, I may as well have it as another, for if I do not take it, another will. And on the other hand, the landlord cares not to whom he letts his land, provided it be to the highest penny, and surest tenant; this is all natural on both sides, self-interest is the first law of nature, and the weakest must go to the wall, as the phrase is; but be assured the end will be fatal, and it is coming very fast; in the course of my time, I can see the growing evil as plain as I see the paper before me: but were we secure from invaders, and could we make our bullocks defend our islands (when dispeopled of all but their masters) with their horns from all enemies, yet it would be true policy to keep our country as well peopled as we could, as a kingdom's

riches consist in the multitude of its people; for bullock cannot eat bullock, neither does meat eat well without bread; these are consequences that ought to draw our attention, were we divested of all humane tenderness for our fellow-creatures.

However, I would not be understood to condemn the graziers of unnatural humanity, or hardness of heart towards the poor; no, that would be doing them great injustice. I know a great many that have helped to ruin their country by holding great tracts of ground, and believe them to be as good men as are generally going in the world: it is none of their fault, the evil grows upon them insensibly: it is as natural for a grazier to lay farm to farm as his capital increases, as it is for a merchant to add ship to ship, trade to trade, wealth to wealth, till it amounts to what he calls a plumb, which is an hundred thousand pounds. In short, it is nearly alike, though the consequence is different; for the merchant is enriching his

king, country, and self at the same time; but the grazier to enrich himself, both weakens and impoverishes his country, by transforming the human species into brute beasts.

Again, it puts a final stop to improvement; because a gentleman-grazier holds so much land in his hands, he finds himself business enough to manage it by stock without being at trouble to till or plow his heathy lingy barren land. Suppose a grazier holds under stock four thousand acres, he need keep no more than four families as herds and shepherds, suppose five persons in each, is only twenty in all.

But if the said four thousand acres was under tillage, and occupied by farmers at one hundred acres each, it would keep forty families well at five in each, which would make two hundred people; therefore the difference is as two hundred is to twenty.

The above are the troubles that Ireland at present labours under, and which have

been to my knowledge, growing upon her this twenty years past. And I am afraid the contagion has reached to south and north Britain, for there I see the farmers are adding farm to farm, and turning graziers, therefore neglecting to raise the staff of life, which is one reason that the kingdoms are so thin of grain, and the poor so distressed for work and bread.

The legislature instead of putting a stop is adding to the evil by consenting to so many acts of parliaments for inclosing open town-fields, and omitting to make such laws as would redress his majesty's poor subjects. I often wonder how it is possible for the legislature to overlook so many wholesome laws as might be made; but it is in this as in most other cases, what is every body's business is no body's business.

And on the other hand, the high stations and fortunes of these gentlemen place them above the general knowledge of grievances; their knowledge is mostly from the precarious information of some

favourites perhaps, who generally tell a plausible tale as they would have it to pass.

It is a pity that a gentleman, before he takes a seat in the house of commons, does not take a tour through his majesty's dominions, and make himself well acquainted with the constitution of her commerce, and grievances of her people: it is natural for a master or employer through all the stages of life, to be acquainted with the abilities of these he employs, and whether or not they be qualified for the trust he confides in them, then certainly this, which is one of the most important points; a point on which the happiness or misery of so many people depends, ought to be attended to with the most judicious inspection.

Those that are pleased in this station, ought to be every thing that is great and good; to be a good commoner, he must be honest-hearted, a lover of his king and country; he should not be a stranger to his own country, as is too often the case

with gentlemen that travel abroad, who being asked about the constitution or commerce of their native country, can scarce give a rational answer; therefore to be well acquainted at home, he ought to travel three or four years through his majesty's dominions.

He may think this is more than needs, but I assure him not, for I have been travelling in them these thirty years, and yet can find something new, that would be worth a commoner's attention.

Adding to all this, he should have the patience of Job to hear all debates, the wisdom of Solomon to judge of them, and the resolution of St. Paul to plead in their behalf, and dare to be honest in the worst of times to his king and country; neither should he be too proud, and distant to his constituents, but condescend sometimes to keep them company, and hear their advice; and let him be assured, that he will hear as found mother wit under a plain, as a laced coat, though perhaps not spoke with such elegance of speech,

And further, let him be as courteous in these matters, as he was when he solicited their votes and interest for the place he fills.

C H A P. XXXVI.

*An advice humbly offered to the Legislature,
shewing the advantage that would arise
from inclosing Commons under a proper re-
striction.*

IN the foregoing discourse, I have shewn the advantage of land being intermixed in small parcels, as is generally the case in town-fields; and how the farmers strive to excel each other in point of good husbandry, and the dangerous consequence of inclosing them, by giving an opportunity to monopolizers of land, to add field to field, and farm to farm, which is too fatally experienced already, and if gentlemen do not shortly put a stop to this growing evil, they must be in time their own labourers, tradesmen and farmers, as the kingdom will be stocked with cattle, instead of people, for the latter must ship themselves off to the continent for want of bread and work, where they are high-

ly encouraged. Alas! poor England, I wish the saying I once heard will not too soon be verified, viz. 'that Rome was, London is, but Philadelphia will be the head of them three.'

And now my good reader, be pleased to pause a while here, and coolly consider the situation of affairs; may we not compare them to a new play? is not the first act now in rehearsal? are not the Americans the comedians? do they not reject our laws, and defy our orders? are they not now more than ever encouraging, and taking away our manufactures of all sorts, insomuch that incredible shoals are shipping off from various sea-ports round the kingdoms? will not this weaken us both in bread, men, and money?

The stage being arranged, in order for the second act, up flies the curtain, the scene changes, and the question put, who shall rule over us? where shall be the seat of the empire? &c.

The entertainment is to our jealous neighbours, but it is Britons that act the farce by not taking care of themselves.

Can he that has eyes and ears, not hear and see the clamour there is thro' the kingdoms among the poor, for bread and work?

Indeed it is not uncommon for gentlemen both to pity and relieve the poor by benefactions; but what does this avail? it only puts the evil day a little farther off; it feeds the flame by adding to idleness; fill a man's belly to day, and he will want more to-morrow.

The true and most sensible charity would be, to find out ways and means how they can maintain themselves. One wise act of parliament authorising a law, might be of more real service to the lower sort of people in England; than were all the money in all the public funds in England distributed among them; as in one case they would be eating out the capital; whereas (in the other) by industry they would be adding to the common stock.

Is it not well known what vast tracts of waste land there are in the kingdoms

of England and Scotland, that in their present state, are not worth perhaps twopence an acre; whereas if they were properly divided, and made a separate property of by act of parliament, would not only find work and bread for all the poor in the kingdoms; but, otherways greatly add to her strength and riches. First, as to her strength, by transplanting houses and people (instead of a few starved sheep, the size of hares, and the wool of goats) all over these vast tracts of waste lands. As to riches, it would augment them in many degrees, both to king and people; for the more people, the more groceries and foreign merchandize of all sorts are expended; also the more malt liquor would be drunk, so consequently more excise would be paid as well for this as for soap, candles, &c. &c.

I verily believe that there are more waste lands that might be turned into corn, than what are bearing corn this instant, were a general survey made of both sorts through his majesty's dominions of

England, Scotland and Wales; then what a strange infatuated people we are! that should look at mountains, and stumble on mole-hills, as the phrase is; that we should send our people abroad to improve the vast continent of America, and leave so much of our small islands at home, wild and uncultivated! This is a remark I have often heard made by travellers, and too justly, I am sorry to say; and I wish it was as well in my power to remedy the misfortune, as it is to explain it; but this I must leave to them that have power, who perhaps may carelessly throw the book aside, crying peugh, what signifies his nonsense? he is writing for money, it is that which makes him speak; however let him lay himself open to conviction, and he will find what I have said to be no more than truth and reason; and as I had matter enough to fill my book, without this chapter, I am throwing thirty shillings out of my pocket by adding it; but though I am a poor farmer, I have such a spirit, that I would

give ten times that sum, that an act would pass to inclose the said common, in the method I shall lay down; as I am sensible of the treasure and happiness that would arise therefrom to my fellow-creatures; but however, it is not every one that has a heart so susceptible of misfortunes as mine, I have felt them in every stage of life, therefore it has been melted and softened to such a degree, that it now sympathizes with every thing that favours of distress.

What I say is quite disinterested, as I am unknown to be the author, and I neither want place or pension, or any uncommon favour from any man. I am a great stickler for the present royal family, and the protestant cause, which, tho' I hope I shall never be tried, but if I was, I think I would rather die than desert.

As I have observed in my introduction, I have a just right to be thoroughly versed in the constitution of the three kingdoms, as to what relates to trade in general, but agriculture in particular.

As to the point of inclosing the commons, if the plan be judiciously laid, there is no doubt of the success attending it, as above; but if an inclosure should take place in the present common method, it will lower the value.

Before I lay down my plan, in order to give my reader a better idea of it, I shall again quote some passages that have fallen within my knowledge, relating to open town-fields being inclosed by some late acts.

A few years ago an act passed, procured by some rich farmers and the lord of the manor, to inclose some open town-fields, complaining of the great loss or distress they were in, by having their land mixed and dispersed in small parcels, so that a man could not do what he pleased with his own, &c.

Now we are to consider that though a man knows his own ridges, and can do what he pleases with them, as to sowing all sorts of corn crops, provided he concur with his neighbour in fencing them

up, and laying them open at proper seasons; for they are common to the poor as well as those that have land, when the corn is not on them; as for instance, in the fallow year the field is common for every one in the town to turn in what cattle he pleases, till Michaelmas day; then it is fenced in, and the wheat sown; and on that day also the stubble is broke open for the poor, as well as the rich, to turn in a cow or what cattle they have. They are again fenced in at Lady-day, in order to sow their spring crop; and if a farmer have five or six acres lying together, he could not inclose it in a field, because the poor have a right to the grazing for the winter half year, therefore they might lawfully break down his fence on the days appointed by a former law.

Thus our forefathers seemed to have an eye to help the poor, though at the same time gave the farmer all the advantage he could make by corn in a regular succession of crops; but upon inclos-

ing the said fields by act, the poor is oppressed two ways, and the public deprived of bread.

First, the poor is deprived as above, of the commonage for the winter half year. Secondly, as a poor cotter who keeps perhaps only two mares to bring foals, and till a bit of ground; and a cow to give him milk for his family of children. Now perhaps such a poor man may rent not above two acres in each field, of which there is generally four belong to a town, so that he may in the whole, have eight acres; therefore, upon the farmer's swapping and dividing for conveniency of inclosing; the poor man having only perhaps two acres, which may be only in two ridges, not above ten or twelve yards broad, but may run the length of a field for half a mile. Such a long narrow stripe of ground puts it out of his power to inclose, as a hedge and ditch would take up a great part of his ground: he sees his disadvantage, so is obliged to give it up to his

next neighbour, who adds it to his part, and this is the case with the fields I knew to be lately inclosed.

For a great many small farmers were either not able to inclose their land, or it was attended with the inconveniency as above; so that most of a township fell into the hands of a few able farmers, who immediately turned it to grass; therefore the land which had been under corn perhaps ever since England was first divided, and the last crop as good as it bore perhaps a thousand years ago was turned a sheep walk, and the people that used to be small farmers, turned labourers, (but could get little work;) and the poor that used to keep a cow, by the help of the fallow field and winter commonage on the stubble, now has none, but wants milk for his children.

This is just the case as it now stands, where the fields were inclosed.

And the commons that have been inclosed in the common method, are not much better, for they also creep into the

monopolizers hands, from much the same causes.

What commons I have known inclosed after the common method, have got into graziers hands, and stocked with cattle; but as unpolitic a scheme as this may be to suffer the rich to root out the poor, or every small farmer, by taking their livelyhood from them; yet it is better these unprofitable lands should be inclosed, or made profitable, than not.

However, since better methods can be found out, why should they not be put in execution. Is any man too great, rich, or wise, to learn? Ought he not to listen with attention to every probable scheme for the public good? and be zealously alarmed at every found that may appear oppressive to the poor, or has the least tendency that way.

And will not common reason shew us that the monopolizers of land are of the most dangerous consequence to the public in general, and poor in particular; I know not any thing that will so quickly operate to the ruin of a people.

A monopolizer of corn is mobbed, houted at, and punished, sometimes greatly; but I do not think their crime is so bad; as they are merchants who keep the balance of trade (from one part of a kingdom to another,) equal; they buy it when it is plenty, and keep it till a scarcity happen; therefore their warehouses may be termed a public granary; and there is no fear of want, or a famine, as long as it is to be had at all; neither can they keep it long, as it is a perishing commodity.

In fact, they are rather a spur to improvement; as they are a market for the farmer to fly to, in time of plenty, whereas if he had no such, it would deter him from sowing corn, so consequently in a few years, it would be as extremely dear, as it was cheap; and the true policy of a people is to keep the balance of trade as equal as possible; and it is certainly better for him to hoard up corn than money. Therefore it is plain the corn-factor is not so great an enemy to his country, as the unthinking mob imagine. They condemn

him because he has more foresight of what is to come than they have, who seldom judge farther than they can see.

But nothing can plead for the monopolizers of land; I can easily find out the bad consequences attending it, but not one good property; land is a commodity that will keep, vermin will not destroy it.

A grazier who feels the sweets of taking a hundred acres this year, will, if he can, add two next, and so will keep pulling on, till he pulls the balance, as a dead weight in his own favour, because in this state of grazing, he can deal with a great tract of land, with the trouble of a few servants, or labourers; and if, by his immensity at last, he is obliged to let it, he certainly will have a higher rent than the first landlord.

In short, there are so many evils attend it, that I dare not pry farther into the matter, lest it swell my subject too large.

But I cannot take leave neither, till I observe that it is only of late years, that this evil has prevailed to any length in

England, and since that, corn has been unreasonably scarce, and the poor pinched: therefore may it please God to stir up the legislative power to an active spirit, to remedy this growing calamity, by nipping it in the bud, before his people be too much oppressed; even one session's delay is dangerous, and adding to the evil, as contracts of leases, and the like, may be made, which cannot be remedied for many years.

But since I have above told the evils the public labour under at present, I will endeavour, in the following chapter, to point out a remedy.

C H A P. XXXVII.

The Author's method for dividing Commons or waste lands, &c. in England, Scotland, and Wales.

THE first step that should be taken in this affair, should be to send out as many surveyors as would survey all the commons or waste lands in England, Scotland and Wales, before the meeting of the next parliament, with orders to take the quantity, state, or value of the land, as it now lyes, and in what county, parish, or township; and how many towns or houses, had common right on each common, with a map of each common annexed thereto, and also to sound the principal inhabitants by a public meeting, as to their sentiments in the point of a dividend, or how they stood affected, whether or not every man would chuse to know his own share, that he might occupy it in corn, and no doubt but every one would make this their choice.

All such proceedings being laid before the legislature, would give them an idea of the great quantity of land there is waste, and the treasure that would arise therefrom, were it in profit.

After this, a general act should be passed, to give liberty for each township, &c. to divide and cultivate their commons or waste lands; without the disagreeable task of applying, or paying for an act for that purpose, as most of the farmers are strangers how to proceed for the first, and are naturally averse to the last.

I have often started the question when I have been with them at towns meeting, or such public places, and their general answer was, that the trouble of applying and paying for such an act, was too great for them to think of, or they could like it of all things.

A proclamation to be issued to the following purport.

Whereas his majesty is touched with a tender concern for the distress of the commonalty of his people, occasioned by the

scarcity and dearnefs of corn, in order to find out a remedy, he was graciously pleafed to order a general review, and meafurement to be made of all the commons and wafte lands in his dominions, which he finds to amount to a confiderable quantity of improveable ground, and if in tillage, would be a large and valuable magazine to fupply his people with corn.

Be it therefore enacted, that it fhall be lawful for the owners of all fuch commons as are herein after mentioned, to proceed and divide the fame under the following reftrictions, viz. Each lord of the manor, or other head officer in the diftrict of each common, fhall give notice to all perfons who claim a right to the faid commons, to appear fuch a day, at a place appointed, to fhew their title thereto, and confult on proper methods for dividing the fame.

And be it enacted, that before you proceed to divide the fame, you firft take an account of all the indigent poor you have in the parifh, or townfhip to which each

common belongs, and for every eighteen, and so in proportion. You are first to measure and lay out thirteen acres and a half of land, in the most convenient places, for to build poor houses on to accommodate the said poor in, (according to the plan laid down in the last chapter in the second volume of this work,) which should be given to the church wardens of the said parishes.

And be it enacted, that every poor house-keeper, cotter, or day-labourer, that has a privilege on said common in right of their dwelling house, or home stead, shall be entituled to half as much land of the said common, as the farmer or land-holder that farms a hundred acres or more.

And be it farther enacted, that the dividend of said common shall be in the most impartial, just, and equitable method. And also be it enacted, that you may inclose said common jointly, by a ring fence only; that no man shall throw up a ditch, hedge, wall, or fence of any sort

to inclose, or fence in his own, or any separate part from each other: and that every fallow year it shall lie open as common: and also it shall be lawful to open the stubbles or after-grass on Michaelmas day in every year, and so to continue as common, till the first of March, in the year next following.

This method of dividing the said land without inclosing, will put a final stop to monopolizing it.

First, it must be kept under tillage, every common righter having a right to break the fence, and turn in his cattle at Michaelmas.

Secondly, it almost puts the poor upon a footing with the rich for improvement; as any poor man, whether he keep a team or not, can get his crop sown, as it is usual for farmers to plow and sow the poor man's land for half the crop; so that any poor man could do this, that could not go to the expence of fencing; and if an act was to pass for that purpose, he must either fence like his neigh-

bours, or sell. This was the case with some commons I have known inclosed; the poor could not fence, so were obliged to sell for any trifle they could get; so that the land has got into a few rich peoples hands, and turned to grass.

Thirdly, improvement would come quicker about, as the old saying would be verified, many hands make light work, because every one would be at work with his own. Nay, in short, the poor man would often be found working at night, and in the morning, when others would be sleeping, to get his bit of corn in the ground; whereas if a rich man was to get several shares, one must stand for improvement till the other was done.

Fourthly, making so many ditches would be a great loss of ground; and it is well known, that corn is never better and clearer from mildews &c. than when it grows in an open exposure; so that upon a general view hereof, it appears very plain, the many great advantages

that would arise by this method of dividing commons.

As to what lands belong to his majesty, such as Nottingham forest, &c. should be laid out in farms from thirty to four hundred acres in each, but not more: such to be inclosed and improved as the renter pleased. The renter should be encouraged by very long leases, to improve and build.

What a fine thing would it be, to see corn growing, and houses building on land that at present, is not worth twopence an acre.

In the laying out of these farms, men of judgment should be employed, to proportion each farm properly; for I know in some places where there is marle and clay to be found, which to the sand would be a treasure, and in other parts there is no such thing: so that a reserve of privilege should be taken notice of in each lease, that one farm might help another in manure. Likewise a few experienced farmers ought to be doubly encouraged

to sit down here and there, in order to be a pattern for the rest.

Though the land on Nottingham forest would set for a trifle, yet the money it would raise would be a great deal; but suppose it would give no rent, yet it would be a great treasure to the public funds, such as maltster, chandler, window-money, &c. &c. &c. but at present it is of no use at all.

I wonder gentlemens eyes are not open to all these things. I am sure if proper methods were pursued, in a few years there would be very few waste lands in the kingdom: there are riches and people enough to improve them, if a proper plan was opened.

It is a reflection which I have heard often cast upon England by travellers, that they wondered there should be a foot of waste land therein, as it is noted for a populous rich kingdom, and only a small island too; therefore it can be no other than gentlemen in power, neglecting or overlooking, which makes her

so backward in improvement. It is not enough for a nobleman or gentleman, who holds the reins of government, to say, I do my country no hurt; no, this will not excuse him either before God or man: he is to do it all the good he can; he is placed there for that purpose. I need not tell him there are sins of omission as well as commission; but I beg their pardon, I had forgot, I am only a poor farmer; then how dare I speak thus? but however, I hope they will forgive me, when they recollect that he is a wise man that can put up with an affront, but any fool can resent one.

C H A P. XXXVIII.

The management, &c. of the white and blue boiling Pea.

THIS sort of pea, is chiefly raised for the food of mankind, and is used for puddings, &c. It is only here and there, we can meet with land suitable for this crop; for though it may produce a full crop, and good looking peas; yet if the land be not natural for them, they will not boil soft, therefore they are of no value, but for cattle.

The land most likely to answer for them, is a dry sharp sand, or gravel, but experience must be the farmers guide herein; for if two pieces of land be both alike, to a man's thinking, and only an hedge parts them, yet one may bring a soft good boiler, and the other not.

The season for sowing it, is about the middle of March, it must be managed in every respect, as the grey pea; it is ge-

nerally fold about the same price of wheat. I have known more than once, twenty pounds an acre made by a crop of them; besides the crop is generally early enough reaped for the land to sow turnips on the same year, which is another great advantage; cattle do not like its straw so well, as that of grey pea straw.

There are two sorts of this pea, but both nearly answer the same end; and the land that will produce one a boiler, will not miss in the other; one is called the blue boiler, being of a blueish cast or colour, and very small and round, and without any dints in it.

The other is called the white boiler, is generally a little larger than the blue sort, this is also round, and is not dented, it is not quite so much valued as the blue sort.

They are both of the early hotspur kind; the seed must be changed every year to chuse, and that which comes from the south of England, is generally

the best, the land being in that country, a very warm, sandy, gravel: the farmers raise great quantities to send abroad, and find their account in it.

C H A P. XXXIX.

The management and perfection of the grey field-Pea.

THERE are two sorts of peas which may be cultivated in the field with success.

First, the common grey field-pea, raised for the sustenance of the brute creation, answering the same end, or made use of for the same purposes, as field beans. The next is a boiling pea, I shall treat of it in another chapter.

The grey pea delights most in a light gravel, or sandy land, but if sown with beans, (which will be a roding for them) they will grow with success on strong lands, but the richer the land, the greater need they have for support, as their straw grows longer, therefore must be sown thinner also.

Sow the poorest land you have with peas, as they will enrich the land, and

on such poor land they corn the best; for when the land is too good, they run too much to straw, and the more straw the less corn.

Oat or barley stubble, if the land be poor, will bring a good crop, provided you give it a couple of plowings in autumn, and winter, but if the land be in a good heart, you need only plow the stubble in, just before sowing.

They may be sown with success, from the first of February to the first of April; but about the beginning of March is the best season.

The land being plowed, sow the peas at the rate of eight stone to the acre, Irish measure: when sown, water-furrow, and gripe the land. This crop must not be rolled; in May, is the time to weed them.

Peas are ripe for reaping, when they turn black eyed within the pod. If they happen to be a short, standing crop, they may be mown, else they must be reaped and rolled, or lapped up in round little

bundles, like a sheaf of corn: thus they must be left in single lumps or sheafs, till they are enough weathered and dried for stacking, or housing; but while they are on the ground, they must be turned two or three times, lest the under-part of the sheaf grow.

C H A P. XL.

Directions for ploughing, sowing, and management of Buck-wheat through all its variations.

THE chief use of buck-wheat in England or Ireland, is for manure, tho' some make use of it for bread; but it is very ordinary bread, not much better than that of peas; it will feed hogs, but peas are full as good, and will yield more corn on an acre; besides they are a surer crop, as they will grow on almost any sort of land.

I will say so much however, for buck-wheat, that where it hits, and is a full crop, it is the finest thing for manure that I have ever seen. I once had a crop, that, when it was rolled down, gave a task to a horse to walk through it, and the land gained so great advantage from this dressing, that the proprietor has good reason to remember it.

The plant is very luxuriant and predominant over any weeds; so that the benefit does not wholly lie in the dung it makes, but in its being an effectual clearer of ground from weeds.

The land that suits it best is that of a light soil, of a sandy gravelly nature, tho' in truth, (except a very strong clay) any land will bring a crop, provided it be well tilled to a fine mold.

Any sort of stubble that is intended for it, must be winter-fallowed, plowing it early in Autumn, in order that it may meliorate with the frost, &c. and again, as soon as it begins to shoot in the spring, and the last time in April, just before sowing. The middle of April is the best time for sowing it.

When ploughed, before it is sown, harrow it once in a place, in order to level it, that the seed may not be buried too deep; then sow the seed at the rate of two bushels to an English acre; after which harrow it very fine. When harrowed, roll it; then you have no more to do with it till

it is fit to plow in for dung, which is when full in blossom about midsummer.

This is done by first rolling it down the striping way of the plow; and then plow it in. If the land be for turnips, as soon as the dung is rotten, (which will be about ten days) if it be plowed in the fulness of sap, or juices, plough it up and harrow it once in a place; a man must follow the harrow with a rope tied to it to shake it, lest it drag the dung in heaps. Being thus harrowed, sow the turnip-feed, and roll it after.

But if the land be for wheat, let it lie unplowed till the grass or weeds begin to grow. Then plow the dung up, and in a proper time after, sow the wheat, and plow it in with the dung.

If you intend the buck-wheat to stand for seed, treat it in every respect like peas, as it is harvested the same way.

C. H. A. P. XLI.

*Directions how to raise Rape and Cole-Seed, and
also how to manage Burn-beating, &c. &c.*

I Shall treat of these two feeds under one management in the same chapter: as they are nearly of one quality, all the difference is, that cole-feed requires the greater depth of soil.

Rape and cole-feed are very profitable, where they meet with land that suits them, which is a black and deep soil; cold rushy bottoms, bog, or deep mountain are very good, provided it be duly pared and burned.

For paring and burning, (by others called burn-beating) take heathy, boggy, mountainy, or rushy, wet and cold low ground, the more ling or heath, and coarse grass, the better. If it be for reclaiming of bog, follow the directions under that article.

If the ground be deep, and will allow

it, pare a sod two inches thick, in order to raise all the ashes that is possible; but before you begin to plow or pare for burning, take a roller six feet long, in this fasten three belts of iron, quite round the roller, at two feet distance; these belts, or rather cutting knives, as they are to perform this office, are about the breadth of a scythe, and are to have prongs to drive into the roller, so that the edge will stand upright.

With this go across the ground intended to pare, which, when pared, it will turn up in fods two feet long, and save a great deal of labour of cutting by hand; the knives may be taken off, or put on occasionally, and the roller will serve for other uses, of rolling corn, &c.

About the middle of April, begin to pare, and do not miss an opportunity of burning the fods when once dry, which will be in three weeks after cutting, if the season be not wet; but in a wet season, they must be set upon an edge, and they will dry the readier.

Being thus dry, and ready for burning, make heaps of about a cart-load in each, with the grafs-side downward; lay them as light and hollow as possible, that they may burn the readier.

Put some fort of kindling under, to set it on fire, such as straw or sticks, &c. but little will do, if there be any rough stuff such as heath, rushes, &c. on the fods.

The way to burn it to the greatest advantage, is not to let the blaze break out, but keep smothering within, for the more it blazes, the more of the nitre ascends into the air.

Being thus burned, spread the ashes and plow them under, with a very thin furrow, at the most, not above two inches thick; then harrow it, and when harrowed pretty fine, sow the feed. After sowing, bush-harrow it.

A peck of feed, is the due for an English acre, which is about one third less than an Irish one. Take care to water-furrow and gripe it well.

In the spring, weed it, and where it is too thick, pull up some plants, and transplant them in thin places, if any there be; if not, throw them away. Some will hoe the rape, but I take this to be a superfluous piece of labour.

The most famous place in England for raising this crop, is in the fenny countries, and they never hoe any; but I have seen farmers in other countries, take great pains in hoeing it, but this may be partly owing to their being strangers to the right management; and to their taking over-abundant pains, through a fear of not doing enough.

The chief thing is to sow it even, and till well; there is then no fear of a crop; for the plants coming up thick, and having a broad leaf, smother the weeds, cover the ground, and keep it light and mellow; so that in this case, I see but little need of hoeing. I had a field one year, and in order to be satisfied, (which was the best way) I sowed a piece in drills and hoed it with the plow; and another piece I hoed by hand.

I did not thresh it separate, but, in all appearance to the eye, there was no great difference, or at least, not any ways equivalent to the labour it cost me; but in fact it was all as good a crop as could well grow.

Where there is not burn-beating, a good crop may be got by summer fallow, managed directly in every degree, as for wheat, with the same manures, &c.

One advantage in sowing rape, is this, that the seed costs a trifle, perhaps not above 18 d. an acre, and if it hit, it is a valuable crop, and should it miss, the loss of seed is insignificant, and the land can be sown with barley at spring, as there is time enough to discover what kind of a crop the rape will be before barley-feed-time.

Observe that it is ready to reap, when the upper branches turn brown; be sure you let it not be too ripe; of the two evils, the least is, to reap it too soon, rather than let it stand too long, for if the pods be in

the least dry or rash, they will open in reaping and shed the seed.

Birds of all sorts are very fond of it, therefore it must be watched for a month before its reaping, to the end of threshing; it is not altogether the value of what they eat, but in opening a pod, perhaps they will not get above one grain, and all the rest will drop out.

It is reaped in the same manner as wheat, but the handfuls are laid singly and light upon the stubble behind the reapers; thus it must lie without stirring till it is ready to thresh, which will be in about three weeks after reaping; for it must be very rash or dry, or there will be a loss in its not threshing clean.

Being thus ready for threshing, prepare a floor in the middle of the field, or most convenient for the carriage, by levelling the ground, on which must be spread a large reap-cloth, in the nature of a winnow-sheet, on which the rape must be threshed.

Spread the rows round, and thresh

round. One man spreads before the threshers, another turns it after them, a third shakes off the straw, and a fourth carries it away. These four men are to supply six threshers and four carriers in; with four to fill the sheets, and one to rake off the pulse and riddle them. These set of people being in all nineteen, will thresh six or seven acres in a day.

It is better to proportion the labourers according to the quantity of rape you have, that it may be dispatched in a day or two, as rainy weather may prove obstructive, but if the rain should happen to catch you, throw up the corners of the cloth and cover it with pulse, such as stays in the riddle, which will turn rain extremely well.

There is no need of taking the seed off the cloth, but keep threshing upon it, 'till all is done.

Some will sell the seed to the oil-mills as soon as winnowed from the cloth; others that do not want money, will heap it up on the floor, mixed with chaff, and

covered up with the pulse, so that it will be round and sharp at the top like a haystack; and thus they will let it lie, perhaps two months, till it gets a sweat in the chaff, which is very necessary, for being of a clammy oily substance, it would turn mouldy when clean in the granary, if it did not get a sweat in the chaff, as above; but this precaution will prevent the said evil.

It is immaterial to say any thing about winnowing, as it is easily done by any one that can winnow flax-seed or corn, as it is only sifting it with sieves to the size of the seed.

The straw was thought of no value formerly, in England, but rather a nuisance, but of late years, the ashes it makes are found to be valuable for making soap; and the soap boilers will buy the straw, perhaps two or three months before it is reaped, and will give from three to six shillings per acre, according to the quantity that may appear to be thereon.

About the latter end of November, if

the rape be strong, so as to bear eating (which you may judge of by the strength of the plant, or grossness of the stalk) turn sheep in, and eat it till Candlemas, provided you do not overstock it; but take care that they do not eat the stalks too near; they ought to go no farther than just to eat the leaves off, without entering on the body of the stalks, for fear of wounding them too deep.

Cole-seed may be eaten a great deal safer than rape, as it produces a grosser stalk; and when all the leaves are eaten off, about Candlemas it makes fresh shoots, and produces larger heads than if it had not been eaten; and, if the land be good, and deep, it will produce a more profitable crop than of any other grain whatever.

I have discoursed with several farmers in England, that know no other difference between cole and rape-seed than the name.

It is true, that the seed is nearly alike, and no difference is made in the price to

the oil-mills, as they produce one sort of oil; but there is a material difference in the plant, and it is the advantage of a farmer to be well acquainted with it too.

The cole-feed is a species of cabbage, originally from Holland. It produces a very large luxuriant plant, in good ground; it will produce a stalk like that of a cabbage, and the seed in proportion to the size of the stalk. A very full crop will turn out a last on an acre.

When the sheep have eat the stalks bare, it is an easy matter to take them up, where too thick on the ground, and transplant them.

I once took as many superfluous stalks out of two acres, as transplanted six; which bore as good a crop as the rest, only a little later.

I am certain, a very great advantage might be made in this method, in the manner following, viz.

It is to be observed, that land for rape or cole-feed, is fallowed all winter, and till the time of sowing, which is the latter end

of June, or in July, by which means the rape takes up the land this year, and till it is reaped, which is about the latter end of June the next year, therefore it is too late for sowing any sort of crop but turnips, when the rape comes off.

Now suppose you had half an acre of good land, or made it so by dunging it better than common, and tilling it a little extraordinary.

At the proper season of the year, which is at midsummer, sow on this half acre, one peck of either rape or cole-feed, but to chuse, cole-feed.

Now, we suppose this to produce a very plentiful crop of plants, perhaps very few grains would miss; thus let them grow till Michaelmas, and suppose you have ten acres of either wheat, bear, barley or oats, as soon as the corn is reaped, plow the stubble; let it lie a month or six weeks to rot, and then plow it again; this will be near as good as summer fallow.

Begin at one side of the field, and plow a furrow; in this set a row of these plants,

a foot asunder, leaning against the side of the furrow; then plow another furrow against it, make the furrow about a foot broad, so continue till all the field be set; but it is the best method to set them with the transplanting machine, as directed for wheat.

If the land be good, there will be no need of dung, &c. but if it be poor, have rotten dung in the field ready laid in heaps; take baskets, and lay a little at the root of every plant, about the size of a large potatoe will be sufficient; by this means a little dung will go a great way, and not any of it will be laid in vain, as every plant will have the good of it.

This is a mighty ready way of transplanting; for except the plowing, it will not cost above two shillings an acre. The plants will be the better for leaning on one side. About March, if the mould be drawn up to the stems, they will be the better, though they may do very well without.

I do not doubt but there are as many grains in a peck of rape-feed as will set,

at a foot of distance from each grain, a hundred acres, therefore without doubt, there will be as many plants to pick, and choose, as would plant ten acres at the same allowance.

When the rape is reaped, sow turnips. This is getting three profitable crops, and part of a summer's fallow, in two years; and the two last crops are of an improving quality.

It is true, I never saw this method put in practice by any other person. However I made trial enough in this way, to prove it valuable.

This experience joined to the reasonableness of the thing, makes it clear to me, that a farmer by this management, might make great profits of his land.

If it should be a busy time about Michaelmas, the transplanting might be deferred till the beginning of February, and keep the land fallowing all winter; and indeed, I doubt not but this is full as good a season as Michaelmas, and the land may be kept fallowing, as I observed.

The spring planting, will drive the crop a little later; but I am convinced, that there is no doubt of the plants growing, from either seasons: it is my opinion, not above one in an hundred would miss.

I should be glad to see this profitable piece of husbandry put in practice, in, a large degree, as reason speaks so clearly in its favour.

It would also make good winter feeding, if he did not choose to let it stand to feed.

What a fine affair would it be for a farmer, to make ten or fifteen pounds an acre, of his stubbles, the land the better for it, and the expence not above three or four shillings per acre?

If it should miss, the loss is scarce worth notice, and the land will be the better for the fallow at any rate.

The middling produce of an English acre of rape, is half a last; it sometimes happens that an acre will produce a last; but it must be very good. Cole-seed will very often produce a last, as the in-

crease is something more than that of rape.

A last is ten quarters or twenty barrels, or eighty bushels, Winchester measure.

N. B. The cloth for carrying the rape to the threshing-floor on, is six feet broad, and eight feet long. To the two opposite sides are fastened two poles to keep the sheets stretched. Two men carry the sheet betwixt them, each man a pole on his shoulder; every two men must have two sheets, one to be filling whilst the other is carrying to the floor.

It is a piece of good management, and saves a year's loss of land, to sow rape on stubble land, provided it can be got off before the last of July; the land must be twice plowed and well harrowed.

C H A P. XLII.

On the management of Turnips 'till ready for feeding sheep on, with proper fencing, to pen the sheep on the turnips, when feeding.

TURNIPS are a very beneficial crop, and a great improver of land, particularly if they be eaten on the ground with sheep.

It is always allowed, that a good crop of turnips is as much profit to a farmer, as a good crop of wheat; besides they are an excellent preparative for a crop of barley and clover.

It may with great truth be said, that the land gets a fallow, a good dressing, produces a valuable crop, and this all in the course of one year, and the expence of the seed is only about sixpence per acre. There is this advantage too, that any sort of land may be made to bring turnips, by tillage and manure, or by paring and burning.

Begin to plow your stubble that is intended for turnip-fallow, in autumn; drain and water-furrow it, that it may lie dry all winter. Plow it again the first of March, and as often after as the weeds or grass begin to grow; about the twenty-fourth of June is the proper season for sowing; a pound of seed is sufficient for an Irish acre; observe to sow it when it is likely to rain.

If you intend to give your land any manure, it must be laid on before it is plowed the last time, and then plow it in with a very thin furrow, that the turnips may have the benefit of the manure, as it is in any case wrong to bury manure too deep.

Harrow it well before you sow the seed; after sowing, roll the seed in, which is better than bush-harrowing.

It is by much the cheaper and better way to take great pains in sowing them thin and even, than be at the expence of hoeing.

I may be thought here to be wrong,

for, says my reader, hoeing is of service to lighten the ground, and cut the weeds, as well as thin the turnips. But as to the weeds, it is much better to pull them up than leave the roots in the ground to grow again, which is the consequence of hoeing.

As to disturbing the earth about the plants, I cannot think it of service equivalent to the labour it costs, also turnips love to have firm ground to grow on, and they are generally the best that turn and apple, quite above the ground, only trusting to one small leader, or root which strikes downwards: a forked root is never so good as a single straight one; and it is generally in light ground that these forked roots are found.

This is the reason why the sensible farmers recommend rolling in the seed so highly when sown, instead of harrowing it in.

I have often heard unthinking men say, that it was no matter how thick the seed was sown, as they intended to hoe

the turnips, not considering that it is from their very infancy that the dint of damage is sustained; for a turnip ought to spread the top round it, upon the ground, at the first coming up; by which means it will turn or apple very young; but this cannot be the case when they are sown thick; for instead of spreading, they draw one another up, tall and weak; and instead of appling, the bottoms run perpendicular like parsnips.

This is the evil they fall into before they can be hoed at all; and if they be drove too late, the evil is yet greater; for the goodness of the turnip generally depends upon the good turn it gets when young.

When these tall, weak, aspiring tops come to be thinned to eight or ten inches distance, their weak constitution cannot bear the sudden change, but droop their heads and look sickly, 'till kind nature, which has been busy in drawing up the top, descends again to assist the root; this change however admits of delay, for cer-

tainly there is a stagnation in growing, when they are stopped by hoeing, from running into the top, in order to supply the bottom; and a week's stoppage in growing, at this time of the year, is of bad consequence, not to speak of the bad turn they get in appling, &c.

What I have said may be proved, almost in every turnip-field, where chance has scattered a grain of seed, to an outside, next a path, &c. I say this joined to the above reasons, will prove that sowing thin without hoeing, is preferable to sowing thick with hoeing.

If this be the case, the expence of hoeing, which is very great, particularly by hand, is in a great measure thrown away.

I would however not be understood to condemn hoeing entirely, this would be going too much into the opposite extreme; but I should be glad to recommend such precautions and methods to the farmer as may save him as many hands as possible; for surely it will be al-

lowed, that he is the best manager, who can raise the best crop, with the fewest hands; and the precaution of sowing turnip-feed so thin, that they may need little or no hoeing, is a great saving.

Neither is it altogether the money that is to be considered, but the difficulty of procuring labourers who are scarce to be got for money at this busy season of the year; and what adds to the evil, is that the hoeing of turnips for the most part falls in harvest.

It mostly happens, that where people are strangers to a business, they are diffident in themselves, and through a fear of under-doing, they often run into the other extreme.

About twenty or thirty years ago, turnips were not so general in England as now, then the farmers took great pains in hoeing them; indeed they sowed them so thick on the ground, there was no avoiding it; but now their eyes are opened, they have more sense than to throw abun-

dance of feed away, to create themselves labour, at a time when they ought to be in the harvest-field.

There is not a judicious farmer in ten, now-a-days, that hoes his turnips; for my part I never do.

As the land was either fallowed, or burn-beated, it is presumed there are not many weeds; and if there be, it is better to pull them up by the roots; for a plant is more effectually destroyed by pulling up, than by cutting off the top, which will return sometimes with greater vigor.

As to manure for turnips, there is none equal to ashes made by burn-beating, as the turnip is larger and sweeter from ashes than any other kind of manure, which makes burn-beating a valuable piece of husbandry for profit, and reclaiming four coarse land, provided the directions under that article be kept up to; as the burn-beating for turnips must be managed the same way as for rape.

See burn-beating under the title of rape.
I refer my reader to the receipt to prevent
the flie from destroying turnips.

C H A P. XLIII.

On eating turnips on the ground with Sheep, and a full description of proper fences for penning sheep thereon, &c.

ABOUT the middle of December is a good time to turn weathers into the turnips, and if possible, let the first turning in be when it is a frost, for then they are hungry, and will the sooner take to eat them; an English acre of good turnips will feed fifteen sheep.

If it be consistent with the farmer's conveniency, it is much better to eat his turnips by three sorts of sheep, viz. breeding ewes, fat weathers, and floor sheep.

The ewes being hungry, will eat, or rather devour the leaves, without scarce touching the apple; after this come the fat weathers, and eat the body of the turnip, all to the shell; then come the floor sheep, who are not so nice in their palate, and eat the shell.

By this oeconomy, your turnips will feed more sheep to a better advantage, and the reason is obvious, for the leaves are not of that fattening nature as the apple, they are rather the reverse, as the juice they contain is of a thin, acid nature, and subject to cause a scowring and griping in the sheep, therefore when fat sheep are turned into a fresh break of turnips with the tops on, they certainly are retarded in their feeding; and also when they come to the shell, which is generally dirty, they feed on it with reluctance, as their pampered appetites are more delicate than lean sheep, and in the time they are eating up the leavings of a full belly, they generally drop in their flesh, but if you give them nothing but the best and cleanest part of the turnip, you will have them ready for the butcher in about one third less time, and though the top and bottom do not agree, as I observed, with a pampered appetite, and where we expect to flush a sheep up for the markets, yet they will answer very well where we only expect them to

keep the flesh till the summer feeding comes on.

Another thing you are to bear in mind too, is not to turn ewes with lamb into turnips, as it will feed the lamb so large in the belly, that she cannot lean with safety, therefore you will have a chance of losing both ewe and lamb; however there is not that fear, if you only leave them on till they eat the tops, which they generally finish before they begin with the apple, except some old stagers who have been used to eat the apple of the turnip.

Confine them to what they will eat in a week, and do not break a new piece before the old be clean eaten off. Send men with forks to throw up the bottoms or shells, that the sheep may come easier at them, to eat them clean up.

There are several kinds of fences to fold or confine sheep to turnips; such as sheep-bars, netting, and hedging; the most common of those in England, are sheep-bars; these are the readiest shifted, the best fence,

and indeed the cheapest, considering how long they last.

There is not much ingenuity required in making them; the chief thing is to make them light, and handy, so that a man may carry half a dozen on his back at a time; for as they are often shifted, their own weight will break them if made clumsy and heavy.

Another fence is netting, but this is only for a country where wood is scarce. This is more expensive, and not so easily shifted, particularly in a hard frost, which often happens in turnip-time.

As posts or stakes are hard to be got either up or down; whereas if the points of the bars only just enter the ground, so as to keep them from slipping, they are propped up behind with a forked stick, and will stand very well.

Where there happen to be sheep with horns, they are very apt to get intangled in the net, if it be not kept well stretched. I have known several lost by such accidents.

The net is made of cording, about the size of a jack-line; the meshes are about four inches square; a cord about half an inch in diameter, is stretched and run through the top of the net, and goes thro' holes bored in the top of the stakes or posts, which are set fast in the ground at five yards distance; the bottom of the net is tied with a pack cord, to the bottom of each stake, to keep it in full stretch.

I was once travelling through Scotland, and happened to be in company with a gentleman who had net-fencing for his sheep, but the frost was then very hard, so that he could not get the net posts up or down; therefore he had just turned the sheep into all his turnips.

I told him, by this he would destroy half his crop, as the sheep would scoup the top, and leave the bottom to hold water, which would soon rot them.

In short, I advised him to make faggots, (as he had brush-wood enough) and make one end broader than the other, and to set the broad end downwards, and let them

lean against each other, which (except a very high wind) will stand very well without stakes, make a good fence, and be a great shelter.

I happened to be again in company with the same person. He told me he took my advice, threw his nets aside, and stuck to the faggots; for, says he, they are the readiest and best fence that can be made use of, as half a dozen men will make a sufficient quantity in a day; besides, when the season is over, they are good firing.

Those who have brush-wood enough, would do well to follow the said directions, it is no matter how simple the method may appear, provided it answers the end proposed.

As the sheep will, or ought to have their turnips eaten by April, they may be sent to the market; or, if you have clover, they will pay very well for keeping, till the latter end of May, as the markets are advancing till that time; after which

you may lay the clover up for meadow, and have a good crop of hay.

In short, if a farmer manage his affairs right, by laying in his stock of sheep in a proper season, and buying what we call half thicks; he need not doubt of doubling his money, and sell them off in April, when the turnips are over: if he keeps them longer on clover, he may expect a farther advance, besides he is at no expence of harvesting, &c. and his sheep carry his crop to the market, and the land is well manured, cleared of weeds, and in good order, for two other profitable crops, namely, barley, and clover.

Lay-land, summer fallowed out of the fod, is a sure preparative for turnips, without any sort of manure.

Indeed summer-fallow, for grass-land, is an excellent piece of husbandry, being the best dressing land can have, and is sure to bring a crop of any thing, let the land be ever so poor aforetime; the roots of the grass and weeds or whatever has

grown in it, being dispersed and mingled with the sod, when they come to be turned up to the sun are stopped of vegetation, by which means they rot, and are rendered a manure of the richest kind, every fibre is full of nitre, and enriches the particles of earth that clings about it.

It is a doubt to me, but three inches deep in grass-land, has as much bulk of weeds or grass-roots, &c. as of mold, and if so, what a dressing must it give to such land when rotten; but you have this fully explained in a former chapter.

*A Table of expence and profit of an English
acre of Turnips, when eaten off by sheep.*

There is no doubt, but a tolerable acre of turnips, will feed 15 such weathers, as will cost in autumn, twelve pounds a score, and by the common course of things, there is likewise no doubt that when fat, and by the advance of markets, they will give in April 24l. a score, which leaves a profit to the farmer of

l.	s.	d.
9	0	0

If they grew upon fallow, I allow eight plowings, which if done with one man and two horses, will be worth 2s. 6d. each plowing.

To harrowing, sowing and rolling	-	-	-	1	0	0
To feed	-	-	-	0	2	0
				0	0	6
				1	2	6

A Table on Turnips.

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Brought over	1 . 2 6
To forking up the turnips, and attending the sheep, in shift- ing the bars, and hay, &c.	0 15 0
To market expences, driving, Sales-master, &c. -	0 10 0
To half a year's interest for twelve pounds - - -	0 5 0
To land rent - - -	0 15 0
Total expence	3 7 6
Clear profit	5 12 6

C H A P. XLIV.

Remarks and illustrations on the foregoing Table, together with the method of feeding Butlocks, &c.

IT is a common thing with good farmers, to make double the price of their turnip-fed sheep in April, (cost what they will in autumn) and I am quite clear, the Irish and Scottish farmers have as good a chance to make as much profit, if not more, than any in England, as their land and labour is cheaper; and let the markets for fat cattle, be high or low, the markets for lean, bear nearly the same proportion in every country.

I have given good allowance in said table, for all labour or attendance, as I would not leave it in a farmer's power to even think that I would flatter him into any scheme, by shewing a great profit at the end of a tot up, without allowing him sufficient for his labour, while he is executing the same.

1772	Turnips	Barley	(Clover Grats	Wheat	Oats	Grats	Meadow	40	30	30	160	120	108	180	668	28	9	20	16	112	10	10	9	18	58	265	402																
1774	Barley	Clover Grats	(Clover Hay	Wheat	Oats	Grats	Meadow	40	30	30	160	120	108	180	668	28	9	20	16	112	10	10	9	18	58	265	402																
1776	Clover Grats	Clover Hay	Wheat	Turnips	Barley	Grats	Meadow	40	30	30	160	120	108	180	668	28	9	20	16	112	10	10	9	18	58	265	402																
1778	Clover Hay		(ats	Turnips	Barley	Grats	Mendow	40	30	30	160	120	108	180	668	28	9	20	16	112	10	10	9	18	58	265	402																
The Year of our Lord 1772		l. 568	l. 568	l. 568	l. 568	l. 568	This Field is charged to the Account of the Cattle fold	Total Produce of Horses fold in fix Years	l. 240	Total Produce of Cattle fold in fix Years	l. 180	Total Produce of Hogs fold in fix Years	l. 180	Total Cash by Wheat in fix Year	l. 960	Total Cash by Barley in fix Years	l. 720	Total Cash by Oats in fix Year	l. 648	Cash by Sheep fed with Turnips in 6 years	l. 1080	Total Cash in fix years of a 150 acre farm	l. 4008	Total Expen- ce in fix years for Men Servants	l. 168	Total Expen- ce in fix years for Male Servants	l. 54	Total Expen- ce in fix years for Labourers	1241 16s	Total Rent for fix Years	l. 675	Total Expen- ce in 6 years Rep.	l. 60	Total for fat Cows in 6 years	l. 54	For Sheep in fix years	l. 103	Seed and bread Corn for fix years	l. 351	Total Expen- ce for fix years	1594 16	Clear Profit in fix years.	2413 4

EXPLANATION of the above TABLE.

The Columns wherein stands A B C D E F G H is supposed to be eight Fields, fix of which is always kept in a regular Succession of Clover and Tillage; the other two G and H is natural Meadow and Pasture, as it is a equal Chance, but out of every 150 Acres, near twenty may be rocky or woody, and not improveable or proper for Tillage, but may do well for Pasture. The parallel Line and in each Column as explained, you see the yearly Expence and Produce of each different Article, and upon subtracting the Expence from the Produce, we find clear Profit each Year 402 l. 4 s. as appears in the Cash Columns, which makes in fix Years (the Time the Crops are going round) 2413 l. 4 s. clear Profit; neither can a Farmer say but I have allowed him as good Living as any Grazier in Ireland could desire, were he to pay five thousand a Year Rent. In the Wheat Field he might introduce a few Acres of Flax; also in the Oat Field some Peas or Beans, which might not at all lessen his Profit, but augment it, particularly if the Land was suitable for these Crops. I hope this appears so plain, that it will introduce this profitable and useful Branch, on which the comfortable Necessaries of Life for both Man and Beast depends; and what I have set forth is no way out of the common Course of Things; for were I to ask a Farmer, Was it possible for an Acre of Land to produce ten Barrels of Wheat, twenty or twenty-five Barrels of Oats or Barley? He would immediately answer Yes, a great deal more. Then what has bee, may be again, for the same Cause will produce the same Effect; and when a Farmer has no more Land than he can manage effectually, he may always depend upon the Success he proposes. Note, As I expect this Farm to be managed in the English Method of moving the Corn, and ploughing with one Man and two Horses, &c. &c. the above Allowance of Labourers and Servants is full sufficient; also considering what Keeping I allow, and the Price the Cattle costs when bought in, there is no Doubt but they will give what I have charged them in selling out.

A TABLE shewing a regular Succession of Crops in Rotation, and the Expence and Profit attending 150 Acres Farm English measure; so that a Farmer may at one View, see both what his Farm ought to be stocked with, what he ought to make Money of, and what Expence he is at, and Profit he gains from one Year to Six, beginning, we suppose, in the Year 1768 and ending in 1773.

Suppose these six Columns fix Fields, twenty Acres in each, shews six Sorts of Crops to follow each other in Rotation, four of which is charged to this Account, but the two Clover Crops goes to maintain the Cattle, and is charged to them.									
In what Year each Field was Cropped with									
A 20 Acres		B 20 Acres		C 20 Acres		D 20 Acres		E 20 Acres	
1768 Wheat	1770 Oats	1772 Turnips	1774 Barley	1776 Clover Grafs	1778 Clover Hay	1768 Oats	1770 Turnips	1772 Barley	1774 Clover Grafs
1768 Oats	1770 Turnips	1772 Barley	1774 Clover Grafs	1776 Wheat	1778 Oats	1768 Barley	1770 Clover Grafs	1772 Clover Hay	1774 Wheat
1768 Turnips	1770 Clover Grafs	1772 Wheat	1774 Oats	1776 Turnips	1778 Clover Hay	1768 Clover Hay	1770 Wheat	1772 Oats	1774 Turnips
1768 Clover Grafs	1770 Wheat	1772 Oats	1774 Turnips	1776 Clover Hay	1778 Barley	1768 Grafs	1770 Grafs	1772 Meadow	1774 Meadow
1768 Clover Hay	1770 Grafs	1772 Meadow	1774 Meadow	1776 Meadow	1778 Meadow	1768 Horses	1770 Bullocks	1772 Hogs	1774 Wheat
1768 Horses	1770 Bullocks	1772 Hogs	1774 Wheat	1776 Barley	1778 Oats	1768 Sheep	1770 £	1772 Men	1774 Women
1768 Bullocks	1770 Hogs	1772 Wheat	1774 Barley	1776 Oats	1778 Sheep	1768 £	1770 Men	1772 Women	1774 Laborers
1768 Hogs	1770 Wheat	1772 Barley	1774 Oats	1776 Sheep	1778 £	1768 Men	1770 Women	1772 Laborers	1774 Acres
1768 Wheat	1770 Barley	1772 Oats	1774 Sheep	1776 £	1778 Men	1768 Women	1770 Laborers	1772 Acres	1774 Repairs
1768 Barley	1770 Oats	1772 Sheep	1774 £	1776 Men	1778 Women	1768 Laborers	1770 Acres	1772 Repairs	1774 Dry Cows
1768 Oats	1770 Sheep	1772 £	1774 Men	1776 Women	1778 Laborers	1768 Acres	1770 Repairs	1772 Dry Cows	1774 Hogs and Sheep
1768 Sheep	1770 £	1772 Men	1774 Women	1776 Laborers	1778 Acres	1768 Repairs	1770 Dry Cows	1772 Hogs and Sheep	1774 Seed Corn &c
1768 £	1770 Men	1772 Women	1774 Laborers	1776 Acres	1778 Repairs	1768 Dry Cows	1770 Hogs and Sheep	1772 Seed Corn &c	1774 L. s.
1768 Men	1770 Women	1772 Laborers	1774 Acres	1776 Repairs	1778 Dry Cows	1768 Hogs and Sheep	1770 Seed Corn &c	1772 L. s.	1774 Clear Profit Yearly
1768 Women	1770 Laborers	1772 Acres	1774 Repairs	1776 Dry Cows	1778 Hogs and Sheep	1768 Seed Corn &c	1770 L. s.	1772 Clear Profit Yearly	
1768 Laborers	1770 Acres	1772 Repairs	1774 Dry Cows	1776 Hogs and Sheep	1778 Seed Corn &c	1768 L. s.	1770 Clear Profit Yearly		
1768 Acres	1770 Repairs	1772 Dry Cows	1774 Hogs and Sheep	1776 Seed Corn &c	1778 L. s.	1768 Clear Profit Yearly			
1768 Repairs	1770 Dry Cows	1772 Hogs and Sheep	1774 Seed Corn &c	1776 L. s.	1778 Clear Profit Yearly				
1768 Dry Cows	1770 Hogs and Sheep	1772 Seed Corn &c	1774 L. s.	1776 Clear Profit Yearly					
1768 Hogs and Sheep	1770 Seed Corn &c	1772 L. s.	1774 Clear Profit Yearly						
1768 Seed Corn &c	1770 L. s.	1772 Clear Profit Yearly							
1768 L. s.	1770 Clear Profit Yearly								
1768 Clear Profit Yearly									

Again I have omitted in the table, taking notice of the sheep dunging the land, by eating the turnips, which may justly be accounted worth thirty shillings an acre, and the fallow is thirty shillings more; therefore we may moderately deem the land three pounds better for this dressing, and this too, without the loss of a fallow year; also a farmer gets the profit of his land in his pocket in April, and he could not expect it much sooner, had it been under any sort of corn: all these considerations a farmer ought to bear in mind; for if he do not impartially reckon every thing, that makes for, and against himself, from the seed going into the ground, to the money coming into his pocket, he never can be a right judge what scheme to pursue for his own advantage.

Feeding bullocks on turnips is another method practised by some farmers; but this falls short in profit of the sheep feeding scheme, for though bullocks clear double their first cost, and make as much

produce out of an acre, yet the expence is greater in attendance, for they are tied in a house, therefore the turnips must be carried to them. Every twenty bullocks will take two horses, and two men to attend on them.

Again the land loses the benefit of the manure, being very considerable in what it would gain by sheep. It is true, bullocks make some manure, but it is very inconsiderable, as the turnips pass thro' them, chiefly by urine.

The bullocks that are fed by turnips, must never be watered, or go out of the house from their first being put in, till they go to the butcher, for the turnips supply them with water enough; and if they be let at liberty, to run or play, it will heat, and disturb their bowels, inso-much that the turnips will pass through them too quick, before they have time to fulfil their office by digestion.

They will eat the turnips the better to be washed and cut in pieces, about the size of a middling potatoe; a man must

twice in twenty-four hours, take some hay under his arm, and give each bullock two or three mouth-fulls out of his hand; about half a pound at a time will be sufficient to clean their mouths of any dirt or gravel.

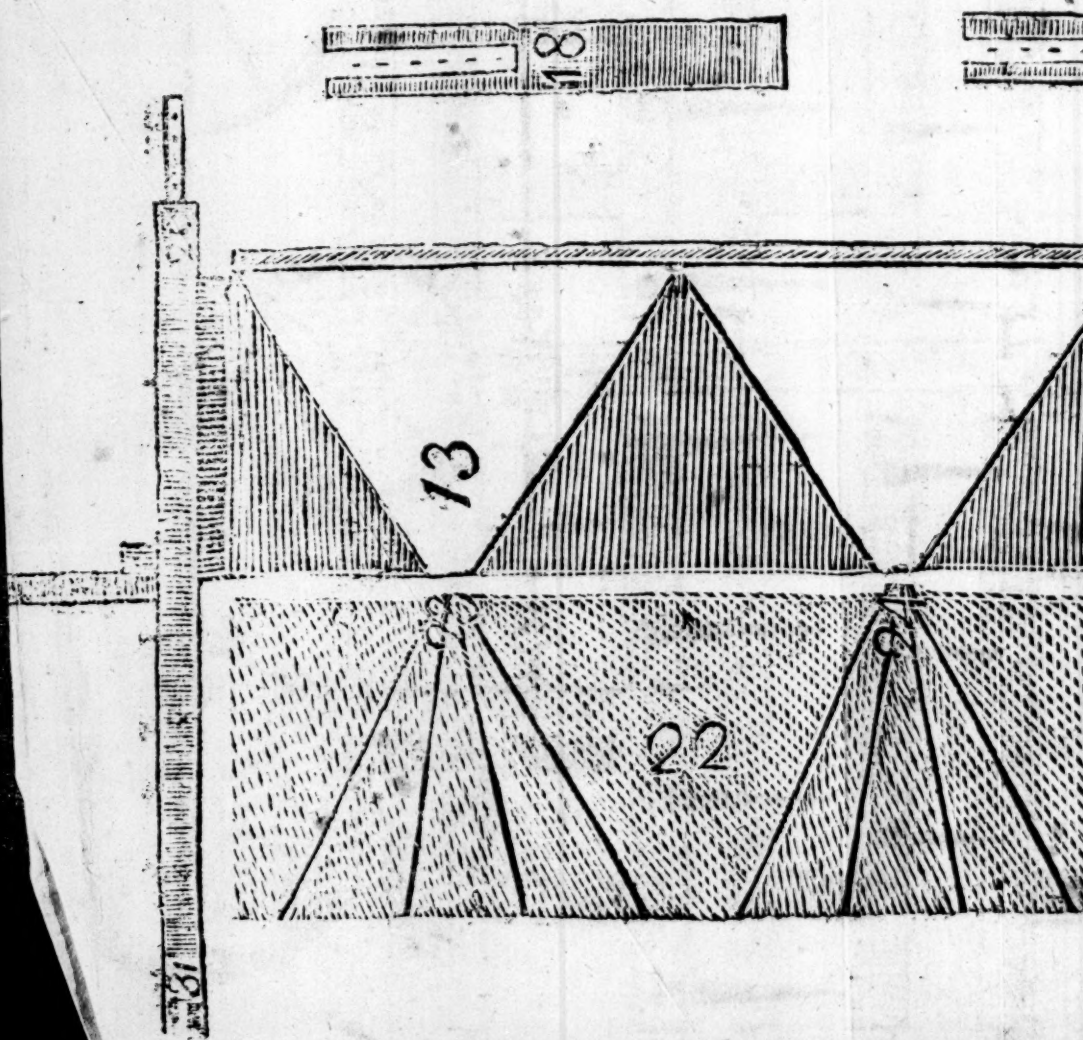
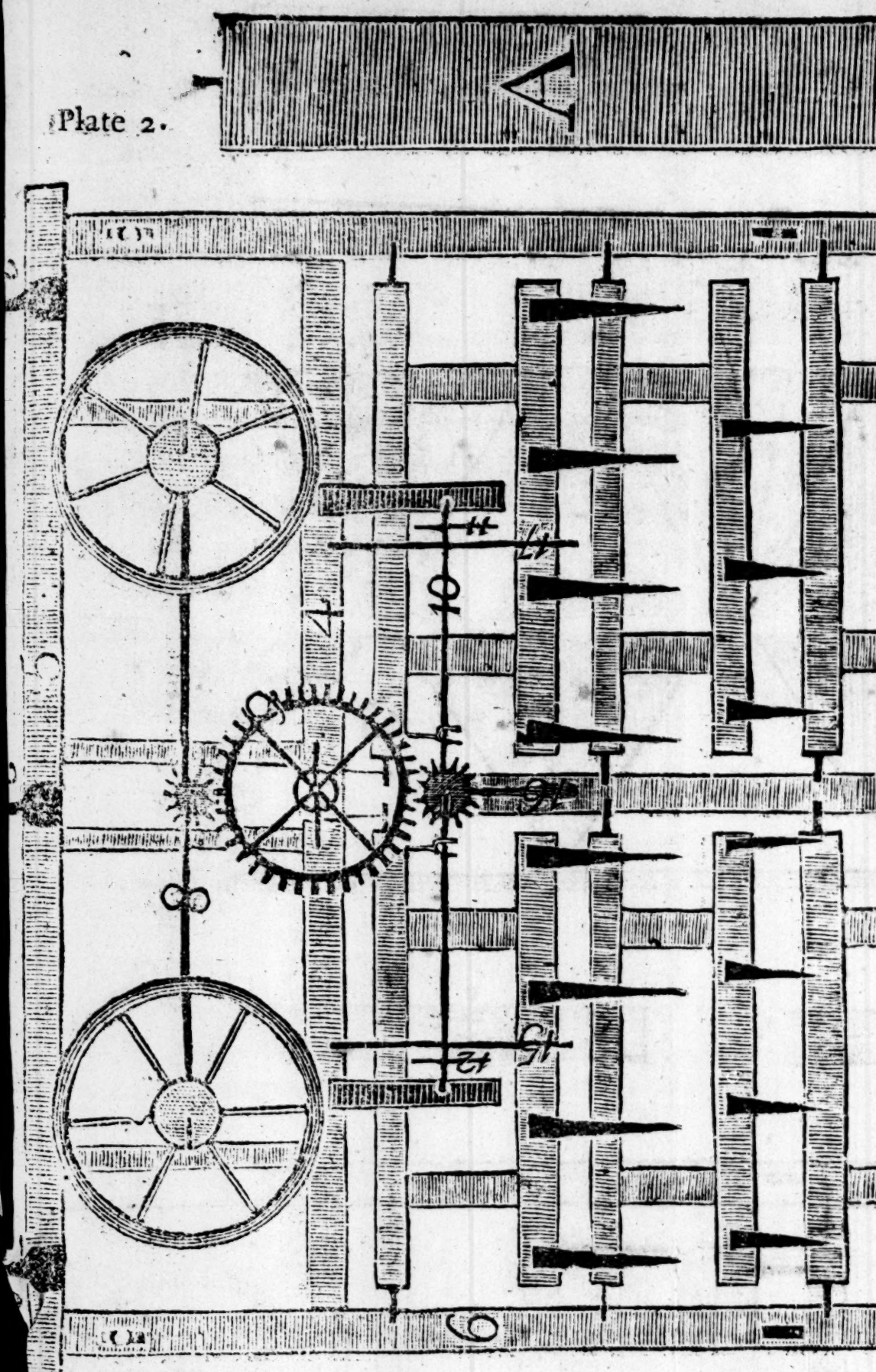
Some farmers manure their meadow lands, by feeding sheep upon them with turnips; but though they gain in one place, they lose in another, and they also add a multiplicity of labour and expence thereto, by pulling up and carriage, which they will very sensibly feel, in fifteen or twenty acres of turnips: however, every one knows his own situation the best, if he be distant from dung for his meadows, this method of feeding sheep upon them will give an excellent dressing. Some feed their cows and dry cattle on their meadows with turnips, but this is a bad way, for the cattle spoil and tread the land; neither are turnips a proper feeding for cattle that run about, no more than for a working bullock.

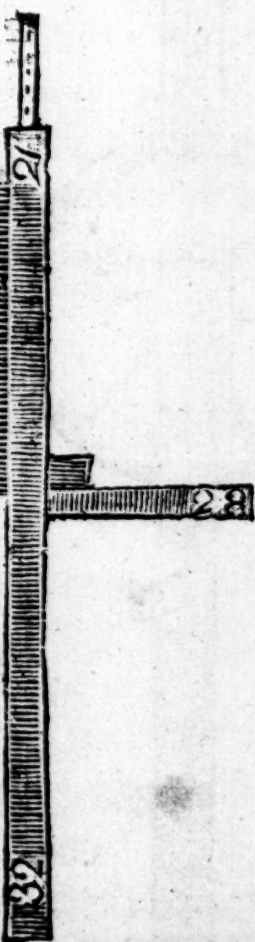
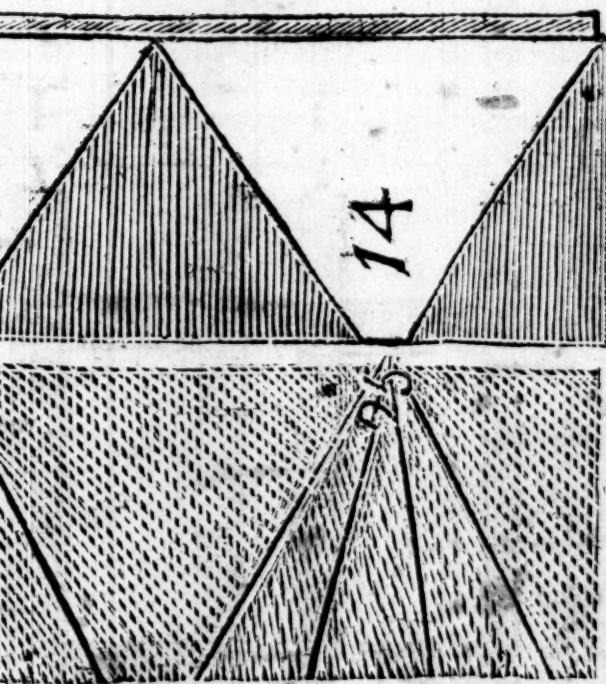
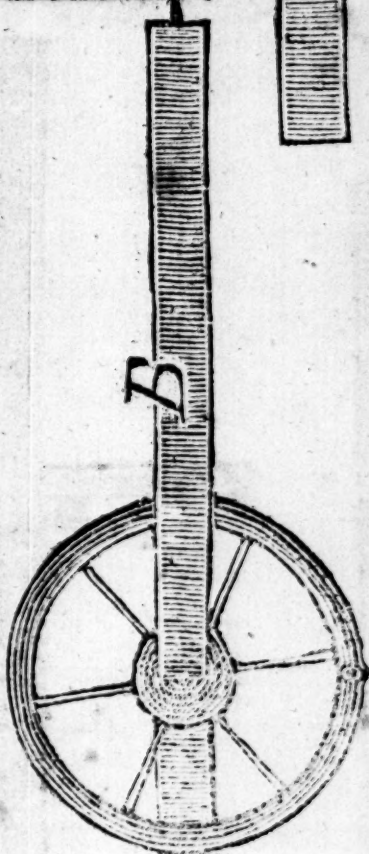
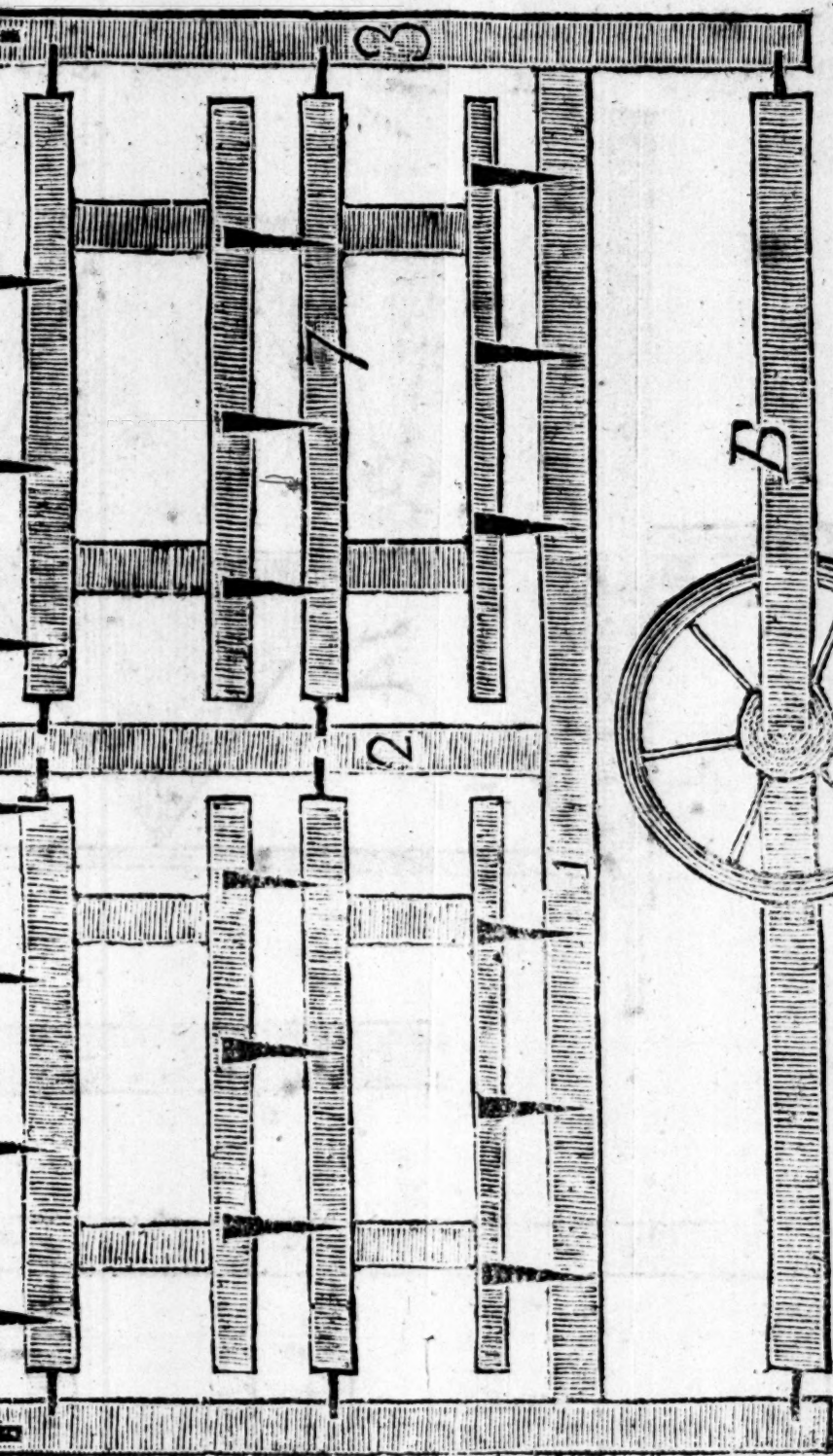
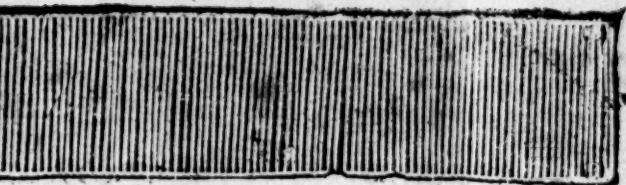
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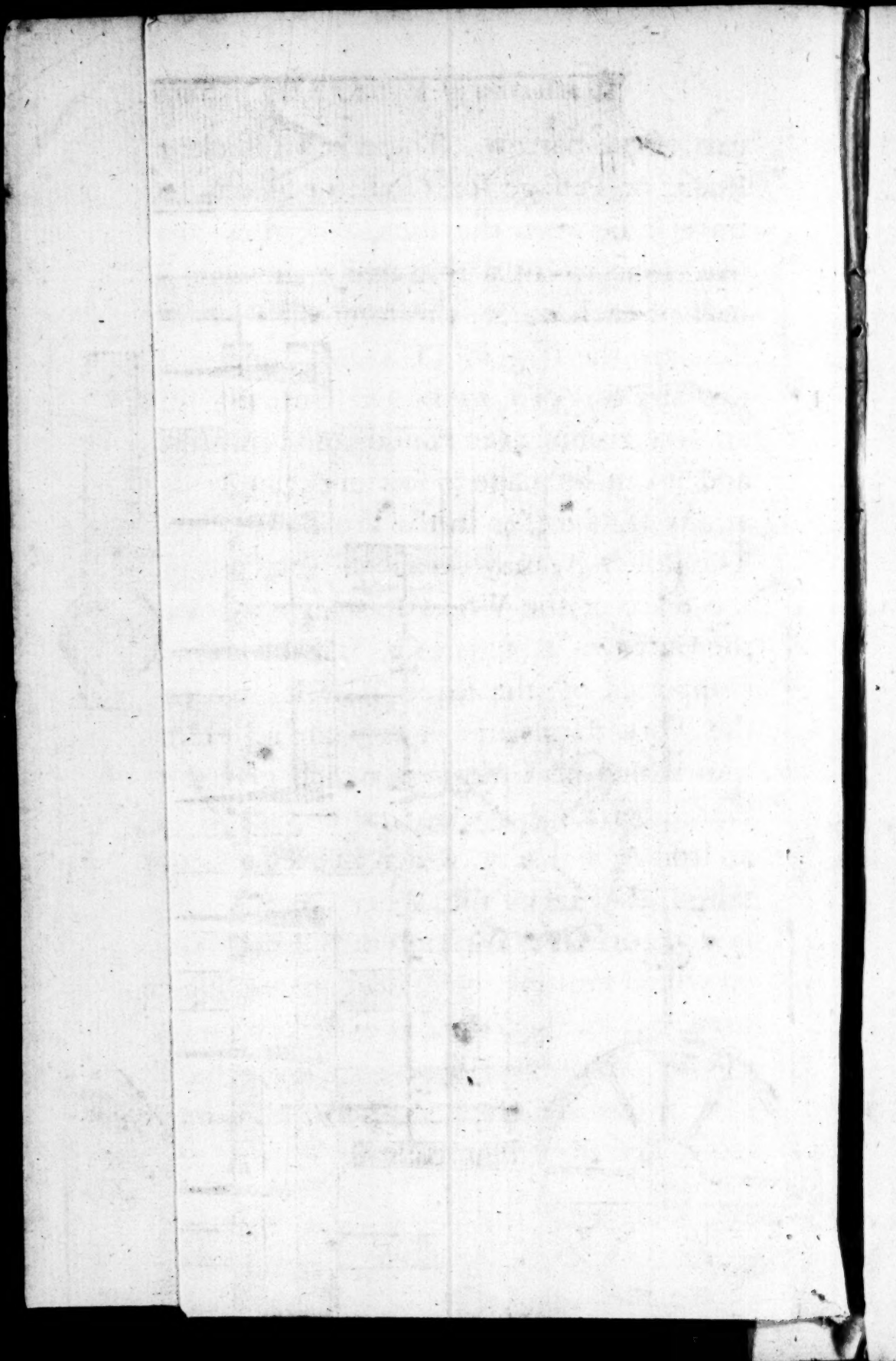
*An Explanation of a Machine for Sowing,
Harrowing and Rolling at one Time, with
one Man and two Horses.*

THE Perfection of this Machine will evidently appear, when it is proved, that it is both a Saving of seed, and wrought with little Expence. This was my intention when I first set myself about it. Any thing loses it's Value, if the Expence over-balance the Utility, let the Invention be ever so ingenious. What Merit is it for a gentleman to say, that he has improved his Lands to a great pitch, when perhaps they have cost near as much as the purchase is worth.

This Machine is also very useful for harrowing Moss from the Roots of Grass, in Meadow or Pasture Land. When it is used for harrowing Moss, the Hopper and Machinery are taken off, and nothing appears but the harrow, the frame of which is supported by three Wheels, every three or four Pins, as may appear by the Cut, may rise and fall, and gives way to a Hill or Stone, without disturbing any other







part of the harrow. There is a sufficient Room or Passage for Clods, or Stones to traverse between the Pins, tho' they are fixed so as to cut within two inches and a half of each other; the foremost Row of Pins are the largest. This Machine will sow any sort of Corn or any Quantity on an Acre, from sixteen Pounds and upwards; and it can be made to sow either in Drills at any Distance, or in the broad-cast Way. The Roller A, may occasionally be put in the place of the Wheel B, which follows the Harrow. 1, 2, 3, 4, 5, 6, is the Frame (supported by the three Wheels) which the Work stands upon; as 7 are all alike into which go Gougings which give the Pins Liberty to play up and down. 8 is an Iron Axle-tree on which is fixed a Cog-wheel, that turns the Wheel 9, and the said 9 turns the multiplying Wheel 10, on which multiplying Wheel are two Flies fixed, 11, and 12, these Flies strike against the Bottom of the Hoppers 13, 14, which raise up the three Hoppers, (being all in one Piece) and lets them fall upon 15, 16,

17, this shakes the Corn out. 18, 19, are Standards which 20, 21, are fixed upon, with a Pin to alter higher or lower, 22 is a spread-board, which is fastened to the hopper with Hinges. On the spread-board are nailed four laths which go up to the Mouth of each Hopper 23, 24, 25, the Hoppers discharge thro' a passage of one Inch Board, but the front Board 26, which goes before the Mouth or Front of all the three Hoppers, can be raised or lowered from the thickness of a Grain of Wheat, to six or seven Inches high; this is done by the two Slopes at each End of the front Board, which lies on a shoulder, in 27, 28. 29, 30, are Standards in which are Pullies, to which pullies are fixed a strap of white Leather, which is fastened to the Hopper 31, 32. The three Hooks at the fore part of the Machine are to fix two Horses of a breast, the two inside Traces hang upon the middle hook. The whole Work is laid down with a scale of one Inch to a Foot.

The End of the First Volume.



